COMMUNITY CENTER AT DUWAKOT

Bhaktapur, Nepal

By:

AAYUSHAMA KARMACHARYA

Batch Roll No. 750102

A thesis submitted in partial fulfillment

of the requirements for the

Degree of Bachelor of Architecture

Purbanchal University

KHWOPA ENGINEERING COLLEGE

DEPARTMENT OF ARCHITECTURE

Libali, Bhaktapur, Nepal

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ABSTRACT

This thesis aims to create an integrated community center in Duwakot, Bhaktapur, to serve Duwakot, Jhaukhel, Bode, and Sallaghari. The center will bridge community gaps, fostering unity and collaboration. Addressing the erosion of communal spaces due to modernization, it will act as a hub for social interaction and bonding. By incorporating diverse elements for various age groups, the center will offer a comprehensive space for social activities, uniting various smaller spaces as initially proposed by the ward.

The community center will offer a multifunctional environment, including recreational centers, sports training spaces for both aerobic and anaerobic exercises, health and wellness initiatives, and social gathering areas. The center will provide economic opportunities by establishing market spaces where local residents can sell their goods, thereby promoting economic growth. The facility will also include dedicated spaces for children to play, temples for elders to worship and chant, and outdoor activity areas for youth and adults. Multipurpose halls will be available for nearby schools and wards to hold programs, and banquets will be available for small community events. Furthermore, the center will incorporate a library and a childcare facility for children under the age of two, ensuring that all community members have access to essential services and recreational opportunities.

In conclusion, the community center in Duwakot will serve as an inclusive hub, fostering unity and celebrating cultural diversity. It will enhance residents' well-being by offering essential services, economic opportunities, and spaces for various activities. By empowering local businesses and supporting community events, the center will significantly contribute to social interaction, health, recreation and the overall development of the community.

Keyword:

Social interaction, social activities, Community bonding, Cultural diversity, Multifunctional activities, Community development, Inclusive space, Economic growth.

ACKNOWLEDEMENT

I would like to express my deepest gratitude to the Department of Architecture at Khwopa Engineering College, Libali, for granting me the opportunity to conduct and present my research under the Design Thesis of V/I on the “community center”. This experience has significantly broadened my understanding of community spaces and their critical role in fostering social cohesion and addressing communal needs.

I am profoundly thankful to my thesis supervisor, Ar. Sushma Bajracharya, for her guidance, mentorship, and support throughout this journey. Her insights and encouragement were invaluable. Her constructive feedback and advice pushed me to think critically and creatively, ultimately enriching the quality of my work and playing a pivotal role in the successful completion of this thesis.

I extend my heartfelt appreciation to the people of the ward and the community of Duwakot. Their willingness to share valuable information and experiences during the research phase was instrumental in shaping my understanding of the community’s needs and aspirations. The community members' insightful suggestions and feedback were crucial in helping me navigate the challenges that arose during this project. Their words of encouragement and appreciation for my efforts continually motivated me to strive for excellence.

I am also deeply grateful to my parents for their unwavering support, patience, and encouragement throughout the entire process. Their belief in my abilities and their continuous emotional and logistical support made this journey smoother and more manageable. Their guidance and love have been a constant source of strength, and I am sincerely thankful for their contributions to my academic and personal growth.

Finally, I would like to express my gratitude to everyone who contributed, directly or indirectly, to the completion of this thesis. Your support, guidance, and encouragement have been invaluable, and I am truly thankful.

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Aayushama Karmacharya

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1. INTRODUCTION

1.1 Background of study

A group of people living in the same place or having a particular characteristic in common is said to be community. It can also be considered as condition of sharing or having certain attitudes and interest in common.

The concept of a community solely to specific neighborhoods or geographic areas. Instead, a community is recognized as a distinctive social system that impacts and informs an individual's life through various influences and organizational factors. It is as much an environment as it is a set of relationships or even a feeling. Apart from being locational, a community can also be relational, meaning that members share a deep sense of community that does not depend on their whereabouts (i.e., churches, fans of a particular sports team, or the military). (Pacific oaks, 2022)

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Community centers focus on 4 aspects:

- Recreation, Sports Fitness Hub
- Educational Hub
- Comprehensive Health and wellness vhub
- Multifunctional community hub, Market squares

A community center is a space where different groups or individuals within a community can gather to address specific needs or issues. The purpose of the center is to solve existing problems and cater to the community's needs, which can vary depending on the community's characteristics. The center we are designing focuses on neighborhood associations and is primarily intended to serve as a recreational hub. Recreation is a vital part of human biology and psychology, offering enjoyment, amusement, and pleasure. Engaging in recreational activities is essential for a healthy lifestyle, providing both physical exercise and opportunities for mental relaxation and social bonding. Time spent outdoors, in particular, is beneficial for the mind, body, and soul. (David naar,2023)

1.2 Some definition of community centers:

"A community center is a public location where members of a community tend to gather for group activities, social support, public information, and other purposes."(Routledge, 2012).

"Community centers serve as focal points for neighborhood residents to participate in social, cultural, recreational, and educational activities."(Simon & Schuster, 2000).

"A community center is an organization that provides services and activities designed to promote community well-being and social cohesion."(Berrett-Koehler Publishers, 2010)

1.3 Perception toward community center:

- Child perception: place to play, learn socialize, and to be creative,
- Youth perception: Play to exercise, to socialize to learn,
- Old age perception: Play to socialize, learn to stay active
- Differently able perception: place to find accessible facilities, welcoming space.

1.4 Project Justification

In the context of modern life's increasing busyness and the resultant feelings of isolation among individuals in their own homes, coupled with the scarcity of community centers, the necessity for such a facility has become more pronounced than ever before. This is particularly evident in regions like Duwakot, Bhaktapur, Nepal, where the diverse population, consisting of Chhetri, Magar, Brahmin, Newar, Khatri, and Nepali communities, lacks access to essential resources and services that can support their overall well-being. The proposed community center in Duwakot, Bhaktapur, Nepal, is strategically located within Changunarayan Municipality, serving as a central hub for residents to connect, engage, and access vital resources. Duwakot, being a growing area with an influx of immigrants, is witnessing a rise in detached residential zones without accompanying community facilities. Data from Duwakot's ward underscores the growing need for amenities such as recreational centers, stores, and restaurants, signaling an urgent requirement for community infrastructure (Duwakot municipality, ward:2)

The envisioned Banquet Hall seeks to address these pressing needs by providing a dynamic space for communal activities and gatherings, fostering social interaction, and combating feelings of isolation among residents. As an architectural student, the design of the community center is not merely about physical structure but about creating an inclusive, sustainable, and sensitive space that reflects the needs of the Duwakot community. By incorporating versatile spaces for recreational, education, health and wellness services, and social connection, the community center will serve as a catalyst for community unity and refreshment. It will not only provide essential amenities but also promote local economic development by supporting local businesses.

In conclusion, the proposed community center in Duwakot, Nepal, aligns with the overarching goal of enhancing the quality of life for residents by addressing their immediate needs and fostering a sense of belonging and solidarity within the community.

1.5 Objectives

- To develop of quality public space which could bring possible interaction among community members with essence of place.
- To study about different functions and recreational activities and space suitable for different age group which could bring them together.
- To offer a gathering space; well organized instructional programs for physical activities.
- To provide opportunities for unstructured activities such as game playing, socializing, club meetings, and outdoor play.
- To provide a space that allow self-reflecting time
- To create a marketplace within the community space to stimulate economic growth and empower residents to establish local businesses.

1.6 Role Of Community Center

- Creating a welcoming and inclusive environment
- Providing flexible spaces
- Supporting community activities
- Providing recreational opportunities
- Fostering learning and personal development
- Providing community services

1.7 Need And Importance

- supporting personal development
- creating a sense of place
- providing a central gathering place
- promoting physical health
- fostering cultural exchange

1.8 Scope and Limitation

The major scope of the project is to provide spaces tailored to the users' needs in a way that positively impacts their daily lives. This includes designing areas for the community to conduct various functions and activities, as well as creating recreational spaces where individuals can spend their time, thereby fostering positive changes in their mental and physical health and enhancing socialization within a dedicated space. The project aims to utilize existing resources efficiently according to the design's requirements without negatively impacting them. However, a limitation of the community center is the potential challenge in accommodating the diverse needs and interests of all community members within a single facility, which may require prioritization and careful management of available resources and spaces

1.9 Methodology

A series of studies will have to be done for the purpose of easing the complexity of the project. The project has been divided into different parts starting from literature review and case study to the final design and details.

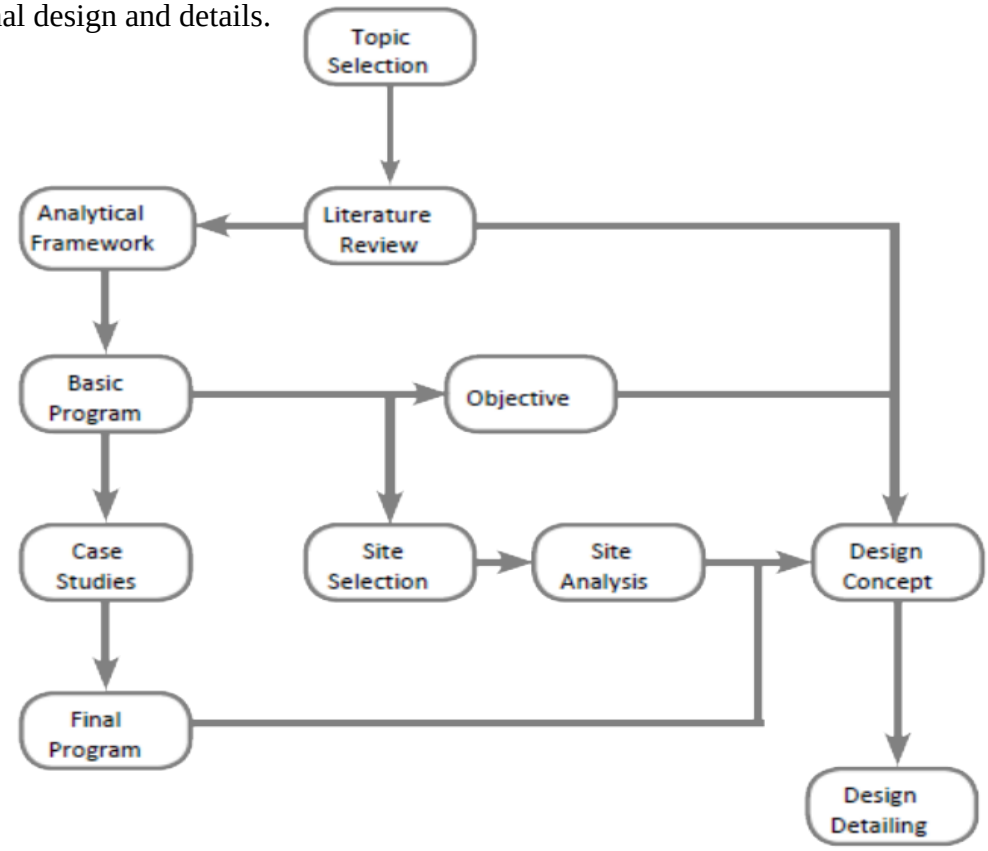


Figure 1.1 a Flow diagram of Methodology

2.LITERATURE REVIEW

2.1 Community

A group of people with a common characteristic or interest living together within a larger society is called community. The members of community reside in a specific locality, share government, and often have a common cultural and historical heritage. The word community is derived from Latin word “communis” which means "common, public, general, shared by all or many". Which is major concept of community. (Online etymology dictionary, n.d.). A community is a social unit (a group of living things) with commonality such as place, norms, religion, values, customs, or identity. Communities may share a sense of place situated in a given geographical area (e.g., a country, village, town, or neighborhood) or in virtual space through communication platforms (Wikipedia.org, n.d.) In sociology, we define community as a group who follow a social structure within a society (culture, norms, values, status). They may work together to organize social life within a particular place, or they may be bound by a sense of belonging sustained across time and space (Zevallos, 2013).

2.1.1 Sense of community

Sense of community (or psychological sense of community) is a concept in community psychology, social psychology, and community social work, as well as in several other research disciplines, such as urban sociology, which focuses on the experience of community rather than its structure, formation, setting, or other features (Wikipedia.org, n.d.). In a seminal 1986 study, McMillan and Chavis identified four elements of "sense of community". They are:

- Membership
- Influence
- Integration and Fulfillment of Needs: Reinforcement
- Shared Emotional Connection

2.1.2 Concept of "community architecture"

The role of architecture in shaping communities has been much debated over the years. And though it has since been proven that its influence is not as direct and complete as once thought, there is no doubt that architecture influences communities in various different ways. (Builder architecture competition, n.d.) Currently, the architectural discourses generally start from the contemporary society premises. It is about the society that we live in, about the communicational, computerized society and about the architecture that has to meet the society's requests the subject of an architecture for community, of a "community architecture" is approached more seldom, and even when it is approached, there is not yet a solid theoretical base or a well-founded concept.

Community architecture is kind of architecture practice between architecture and user. "Royal institution of British" architect "RIBA" described "The aim of community architecture is to improve quality of environment by involving people in the design and management of building and space they inhabited.

In general, architect call 'Conventional Architecture' product, nevertheless 'Community Architecture' represents the process rather than the product and most proponents claim that the built product of 'Community Architecture' is often better than the product of conventional architecture. "Community architecture means that the personal who inhabit it are involved in and may even be instigators of, its creation and its management as well.

The idea of 'community architecture' was not new, and it is related to our life. In relation to western and non-western architecture to analysis 'community architecture' has a huge difference. For relatively affluent Western countries, the spirit of 'community building' will be how to build a better environment and conditions to make residents feel comfortable, but for non-Western countries, 'community architecture' often represents public buildings (Bartleby research, n.d.).

Architecture for the community is design that considers every one of these contemporary real factors. Community Architecture refers to the built environment that is advertised for the utilization of the local area or that energizes local area investment, in a profound and

comprehensive social sense. This means permanent and temporary developments both at the urban level- public spaces, squares, fairs and architectural objects, town halls, libraries, stages, social establishments, clubs, gymnasiums, extracurricular facilities, conversion training centers, spa centers, Community centers. the general needs of the community architecture are: (Zamfir, 2015)

- To give a proper answer to the contemporary needs.
- To create tools for an architecture dedicated to community.
- To be aware of the need for interdisciplinary approaches in community architecture and to form interdisciplinary teams.
- To generate a community theory in order to shape and build community architecture. (Zamfir, 2015).

Until now, the community concept has not been theorized. [6] It talks about a community architecture but without a dedicated concept. Just as the concept of community architecture is essential for disciplines such as sociology, psychology, philosophy, social work, communication and IT as well the concept of architecture dedicated to community is necessary in architectural education and practice. The higher education of architecture is the friendly environment for developing such a concept and a dedicated theory (Zamfir, 2015).

2.2 Community Center

It is an essential asset of a neighborhood. It might be bigger or smaller on the basis of funding. They provide broad range of services to support quality life of community. They simply bring different age group together and provides sense of ownership of individual is expanded beyond boundaries of their own physical house. A Community Center is as much a concept and intention as it is a physical building. It is the base of operations for the provision of services to the community at the same time that it is a haven, a refuge and a meeting point for the community. (Standard of life). It is a public space where people gather for all sorts of activities such as:

• Socialization • For recreational activities

• To attend meetings and social function

• To interact among different age group and people

• For taking part in activities like sport, arts and crafts and gardening.

2.2.1 Types of community centers

All over the world there are four types of community center based on ownership and organization. They are:

2.2.1.1 Community owned

This type of center is directly owned and run by the local community through an organization separate from the official (local) governmental institutions of the area, but with the full knowledge and sometimes even funding from (local) government institutions.

2.2.1.2 Government owned

This type of center is a public (local) government facility, though it is mostly used for nongovernment community activities and may even have some kind of local leadership elected from its community. e.g., Kominkan in Japan

2.2.1.3 Sponsored

This type of center is owned by a rich citizen or commercial corporation and donates its use to the community for reasons of charity or public relations.

2.3 Development of community center

The origin of community center doesn't date too far. The earliest forms of community centers – schools that provided services for communities after hour were recorded in the United States.

The best documented example of this was in Rochester, New York in 1907 – where a Presbyterian minister, Edward J. Ward, became the advocate and organizer behind campaigning for community centers.

2.3.1 History of community/communal space

Though specific community centers were not mentioned to earliest day but they existed among human communities from the earliest of civilization such as:

• Greek civilization: Agora

• Roman civilization: Roman Forum

• Mohenjo Daro civilization: Citadel

2.3.1.1 Greek civilization:

Agora In ancient Greece there was central sport in the name of agora which was the focal point of political, economic and social life of Greek polis. Its literal meaning is "gathering place" which meets its function to community center, Agora was surrounded by private houses being the extension of those houses. The houses combinedly formed courtyards and it was connected to local street and market place.

Figure 2.3 a Greek Agora

(https://www.britannica.com/topic/agora)

The streets were place of public interaction. Similarly, temples within space helped to build sense of community by common belief and ownership.

2.3.1.2 Roman civilization:

Forum It is influenced by Agora. Forums usually have a geometrical, basically rectangular shape in 2:3 proportion. They blended religious and civic activities comprised of temple, basilicas, shops and market. It was also common to find a theater and a public bath, as well as the curia (used for city council meetings) and comitium (political meeting). In later stages the Forums became more defined and enclosed, forming a series of separate spaces.

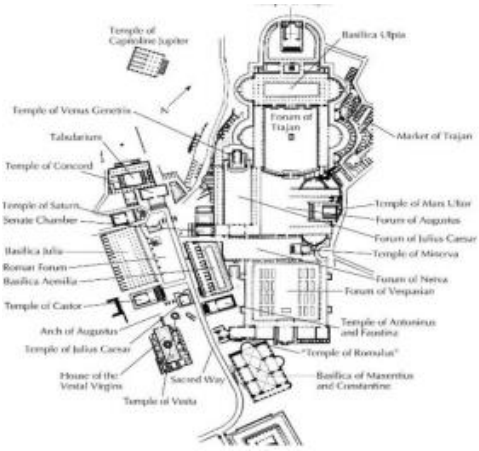


Figure 2.3 b Roman forum

https://mrebbers.weebly.com/ancient-rome.html)

2.3.1.3 Mohenjo Daro:

Since earlier time of civilization, human settlement was developed with the central community spaces. In Mohenjo-Daro civilization, citadel was built at higher ground where public bath, religious shrine, public hall, grainery and residence of leader were fortified. Whereas settlement was developed in lower ground with local market areas, public well for water supply and one to two storied buildings connected to courtyard. People interact with each other in these public spaces.

Figure 2.3 c Plan of Mohenjodaro

(https://quizlet.com/284476499/ch-9-l1-section-3-mohenjo-daro-and-harappa-diagram/)

2.3.2 Public space in Kathmandu valley:

The traditional settlements of the Kathmandu Valley date back to pre-historic era and were mostly built during the Malla period by the Newars on the higher grounds and characterized by the narrow streets and the open spaces. Though the traditional settlements in Kathmandu Valley were compact, there were plenty of public spaces where people met, markets were held, agricultural products were thrashed and dried, and various festivities were carried out. The urban fabric of the Malla towns consisted of alleys, beautifully carved streets and squares. This exhibits a fine-grained network of urban blocks interspersed with a series of interconnected squares or courtyards. The relationship between the narrow streets and open spaces, the placement of houses and monuments tell of a remarkable (David W. McMillan, 2012) understanding of visual and functional principles, related to social needs of Newars (Chitrakar, 2015) Mostly traditional pathway junction has been marked with some religious and or cultural elements, like temples, Bahil, well, stone spout, Patti etc. Traditional towns of Kathmandu Valley consist of numerous urban squares –public spaces where a great amount of human interaction takes place till date. Urban Square is a form of public open space in a city, considerably larger and easily accessible by the community, where notable amount of public activity takes place. Most of these are centrally located and represent civic center of the city (RECPHEC, 2016)

2.3.2.2 Components in Traditional Towns

- Temple
- Bahal and Bahils
- Stupa and Chaitya
- Well and ponds
- Stone water spout
- Dabali
- Sattal, Pati, Mandapa and Chapat (Dharmasalas)

Figure 2.3 d Bhaktapur Durbar square showing components

2.3.3 Transformation of Public Spaces in New Neighborhood

The valley's new neighborhoods have significantly changed from the traditional urban neighborhoods, with significant consequences on the formation and utilization of public space. Several aspects of sociocultural and demographic changes, including the changing lifestyle, occupation and family structure, indicate that the nature of space users has changed. The unregulated development of new neighborhoods, poor capacity of local community-based organizations and the encroachment of public land are major factors behind this change. The meaning of community has changed from an integrated, self-sufficient social organization to a fragment of geographically diffused and socially segregated network. The changing physical, social, political and economic condition of the modern city has led to the privatization of public life and the end of public culture (Chitrakar, 2015).

2.4 Public space

A public space is a place that is open and accessible to the general public. Roads (including the pavement), public squares, community centers, parks, and beaches are typically considered public space. To a limited extent, government buildings which are open to the public, such as public libraries, are public spaces, although they tend to have restricted areas and greater limits upon use.

2.4.1 Dimensions of public space

As public space is multidisciplinary, it concerns not only the physical but also non-physical dimensions. A nice public space can attract a range of activities, making it lively and vibrant because there exists a strong relationship between the physical qualities of public space and its use.

2.4.1.1 Physical dimension

It refers to the physical structure or provision of public space which provides a setting for social interaction.

2.4.1.2 Social dimension

It refers to the use or activities occurring in the space

2.4.1.3 Psychological dimension

It refers to the perception of public space that may be expressed in terms of how people interpret the space and give meaning to it. (Chitrakar, 2015). A good public space is one that reflects diversity and encourages people to live together effortlessly, creating the necessary conditions for permanence, which invites people to be on the street. It is the vitality of spaces that attracts people. What guarantees this vitality is the possibility of enjoying urban spaces in various ways. (Pacheco, 2017)

2.4.2 Principles of public space:

The principles used in order ot make public space reliable for humans and community are mentioned below:

2.4.2.1 Diversity of uses:

Blending residential, office and commercial areas, such as bars, restaurants, cafes and local commerce, attracts people and makes the environment safer and friendlier. The diversity of uses generates external activities that contribute to the safety of spaces: more people on the streets helps to inhibit crime. This diversity, however, needs to cover all times of day. If the spaces are inviting and only busy during the day, they will still be unsafe places at night. Planning public spaces in a way that encourages the coexistence and the permanence of people is also a way of investing in security.

2.4.2.2 Active facades:

Connection between the ground level of the buildings, the sidewalk and the street contribute to safety and the attractiveness of urban design. Visually more interesting streets are used more often by people. In addition, this relationship influences people's perception of the city and how they are to use it: Jane Jacobs says that it is mainly streets and sidewalks that indicate how public space is perceived and used.

2.4.2.3 Social dimension and urban vitality:

As an aggregator of people, public space has influence over the social dimension. Wide, accessible streets, squares, parks, sidewalks, bike paths and urban furniture stimulate interaction between people and the environment, generate a positive use of space and increase urban vitality. In addition to focusing on high-density, urban areas, it is crucial to consider the peripheries, guaranteeing quality public spaces to the population that does not live in the city center.

2.4.2.4 Human scale:

High-scale, high-density construction can negatively affect people's health. In his field studies, Jan Gehl noted that people tend to walk faster when passing empty or inactive areas, in contrast to the slower, quieter pace of walking in livelier, more active environments. Human-scale constructions have a positive effect on people's perceptions of public spaces: they feel that they were considered in the planning process of that space.

2.4.2.5 Lighting:

Efficient and people-oriented lighting facilitates the occupancy of public spaces at night, enhancing safety. When installed on the pedestrian and cyclist scale, public lighting creates the necessary conditions to move more safely when there is no natural light.

2.4.2.6 Stimulating the local economy:

Quality public spaces not only benefit people by offering leisure and living areas, but they also have the potential to boost the local economy. The safe and attractive conditions foster walking and cycling, leading to easy access of local commerce.

2.4.2.7 Local identity:

Public spaces should be planned for the small businesses that characterize the neighborhood. Large enterprises (such as supermarkets or other chain companies) can contribute to the economy in general, but they have little participation in the scale of the neighborhood. Small businesses and ventures have significant long-term impacts, as well as add to the personality

and identity of the place. When planning a public space, it is necessary to take into account the social dynamics and cultural specificities of the area, in order to generate a strong relationship between people and place.

2.4.2.8 Complete streets:

Wherever possible, public areas should be thought of following the principles of Complete Streets and "shared spaces." The Complete Streets concept defines streets designed to ensure the safe circulation of all users-pedestrians, cyclists, drivers and users of public transport. Sidewalks in good condition, infrastructure for bicycles, street furniture and signage for all users are among the elements that can compose a complete street.

2.4.2.9 Green areas:

In addition to contributing to air quality and helping to ease temperatures in the summer, vegetation has the power to humanize cities by attracting people to outdoor activities. As cities become denser, access to green public spaces will become even more important as urban forestation can lower people's stress levels and enhance well-being in cities. In addition, trees, plants and flowerbeds are strategic for urban drainage and maintenance of biodiversity.

2.4.2.10 Social participation:

Involving residents in the design, planning and administration of urban public spaces or the neighborhoods in which they live is essential to maintain the quality of these spaces. Public spaces have different uses and meanings in each neighborhood and community. Resident involvement ensures that the nature and use of public space will meet the community's distinct needs. If a space does not reflect the demands and desires of the local population, it will not be used or maintained. Social participation is a central element for the construction of safer, equitable public areas. (Pacheco, 2017)

2.5 FUNCTION/ ACTIVITIES

Recreation:

Recreation is an activity of leisure, leisure being discretionary time. Recreation is therapeutic refreshment of one's body or mind. It is any kind of rational human activity that results in a pleasurable response and is an essential element of human biology and psychology. Any kind of spaces that allows and encourage such activities are Recreational spaces. Recreational center is a building that is open to the public and are encouraged to get involved in various activities such as sports, yoga/ meditation and many more activities for various age groups.

Recreational activity means any outdoor activity undertaken for the purpose of exercise, relaxation or pleasure, including football, basketball, Badminton, tennis, running, walking community gardening, music lessor, dance etc.

https://www.lawinsider.com/dictionary/recreational-activity

2.5.1 TYPES OF RECREATIONAL ACTIVITIES

Recreational space can be indoors as well as outdoors depending on the activities. These activities are generally categorized according to the age group.

Types of Recreational activities are:

1. Outdoor

- Outdoor Sports and Games
- Swimming Pool
- Wall climbing
- Hiking / Walking
- Cycling

2.Indoor

- Library
- Dance/ Music Studio
- Yoga / Meditation Hall
- Spa/Sauna

2.5.2 Activities according to age group

2.5.2.1 Preschool-Aged Children (3-5 Years)

Children of this age group are generally physically active every day and throughout the day. Active play through a variety of enjoyable physical activities. Various activities include musical adventures, indoor play area, sensory and nature-based programs, art and crafts, STEM activities.

These programs help nurture preschoolers' social development and educational skills in an environment for young children to learn and grow. Most preschool activities are designed for the children under theage of six years old.

2.5.2.2 Children and Adolescents (6-17 Years)

Children of this age group generally need 1 hour or more of moderate- to-vigorous intensity physical activity daily. A variety of enjoyable physical activities as part of the 60 minutes, on at least 3 days a week, children and adolescents need:

- Vigorous Activity such as running or soccer.
- Activity that strengthens muscles such as climbing or push ups
- Activity that strengthens bones such as gymnastics or jumping rope.

2.5.2.3 Adults (18-64 Years)

Adults of this age group need at least 150 minutes a week of moderate intensity activity such as brisk walking. Or at least 2 days a week of activities that strengthen muscles. Activities include hiking, trekking, picnic, cycling, indoor or outdoor sports like badminton, basketball, football, tennis, etc.

2.5.2.4 Older Adults (65 Years and Older)

Adults of this age group need at least 150 minutes a week of moderate intensity activity such as brisk walking or at least 2 days a week of activities that strengthen their muscles, activities that help improve balance such as standing on one foot. Activities involve, jogging, walking, yoga, dance, etc.

2.5.2.5 Adults with Chronic Conditions and Special Needs

Adults with chronic conditions and disabilities should get at least 150 minutes (for example, 30 minutes 5 days a week) of moderate-intensityaerobic physical activity week. And get at least 2 days a week of musclestrengthening activities that include all major muscle groups.

2.5.3 ACTIVITIES AND SPACES

Recreational activities are the activities by which you can spend your leisure time outdoor or indoors being physically active, creative, relaxing, having fun or being social. There is a huge range of exciting outdoor and indoor activities.

2.5.3.1 Outdoor Games

2.5.3.1.1 Futsal

Futsal is a variant of football (soccer) that is played on a smaller field and mainly plays indoors. It can be considered a version of five-a-side football. Its name comes from the Portuguese Futebol de salao, which can be translated as "room football". It was developed in Brazil in the 1930s and 1940s.

PITCH

The pitch is made up of wood or artificial material, or similar surface, although any flat, smooth and non-abrasive material may be used. The length of the pitch ranges from38-42m, and the width range from 20-25 m in international matches. For other matches, it canbe25– 42 m in length, while the width can be 16–25 m, as long as the length of the longer boundary lines (touchlines) are greater than the shorter boundaries where the goals are placed (goal lines).

The "standard" size court for an international is 40 m× 20 m. The ceiling must be at least 4 m high. A rectangular goal is positioned at the middle of each goal line. The inner edges of the vertical goal posts must be 3 m apart, and the lower edge of the horizontal cross bar supported by the goal posts must be 2 m above the ground. Nets made of hemp, jute or nylon are attached to the back of the goalposts and crossbar. The lower art of the nets is attached to curved tubing or another suitable means of support. The depth of the goal is80cm at the top and 1m at the bottom.

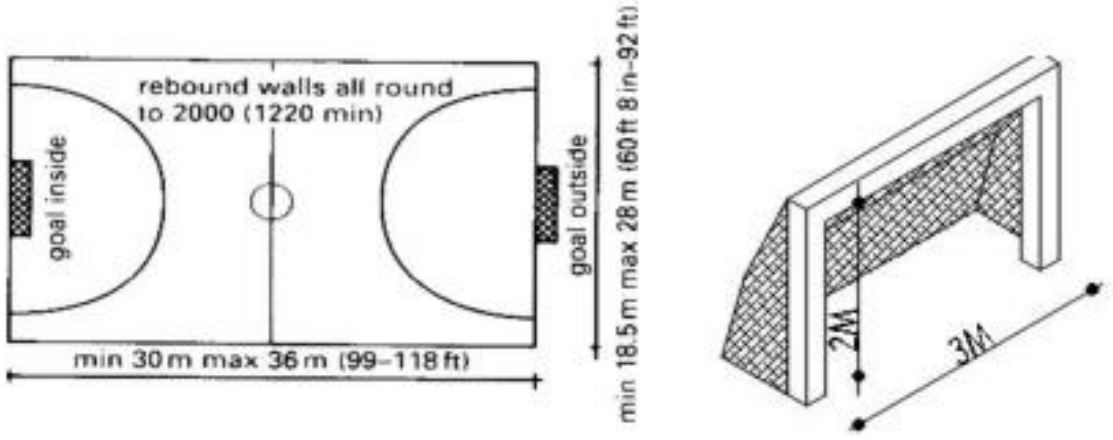


Figure 2.5 a Dimension of futsal and goal post

2.5.3.1.2 Badminton

Badminton is a racket sport played by two opposing players (singles) or pairs (doubles) who take positions on opposite halves of a rectangular court divided by a net. The objective is to hit a shuttlecock over the net and into the opponent's court in such a way that they cannot return it. Points are scored when the shuttlecock lands on the opponent's side or if the opponent commits a fault. The game is fast-paced and requires quick reflexes, agility, and precision.

Figure 2.5 b Outdoor community Badmintion

Pitch

A standard badminton court measures 13.40m (44 feet) in length for both singles and doubles. The width is 5.18m (17 feet) for singles and 6.1m (20 feet) for doubles. The court is divided into two halves, each 6.7m (22 feet) long, separated by a net that stands 1.55m (5 feet 1 inch) high at the ends and 1.52m (5 feet) in the middle.The court has four service courts, each measuring 3.88m (12.72 feet) by 2.53m (8.3 feet). The short service line is 1.98m (6.5 feet)

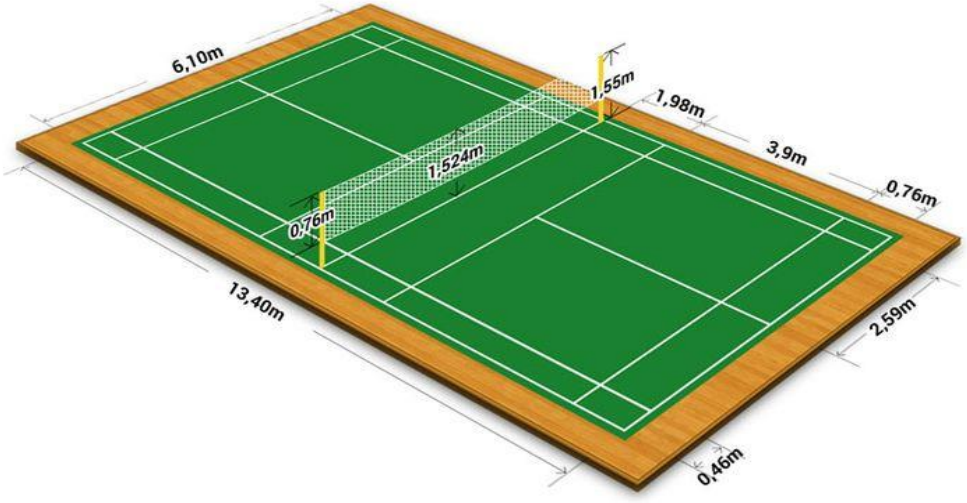


Figure 2.5 c Dimension of badminton pitch

from the net, while the long service line, used in doubles, is 0.72m (2.36 feet) from the baseline. The full court's diagonal measurement is 14.723m.

- Ground space is 1620 sq ft minimum to edge of pavement.
- Singles court is 17' X 44', doubles court is 20' X 44' with a 5'-0" minimum unobstructed area on all sides.
- Preferred orientation is for the long axis to be north south

Surface is to be concrete or bituminous material with optional protective color coating for permanent installation. Drainage is to be end to end, side to side, or corner to corner diagonally at a minimum slope of 1 in. i n 10 ft. Badminton may be played on a turf court for general recreation use, with surface drainage as described above at a minimum slope of 2% and adequate underdrainage.

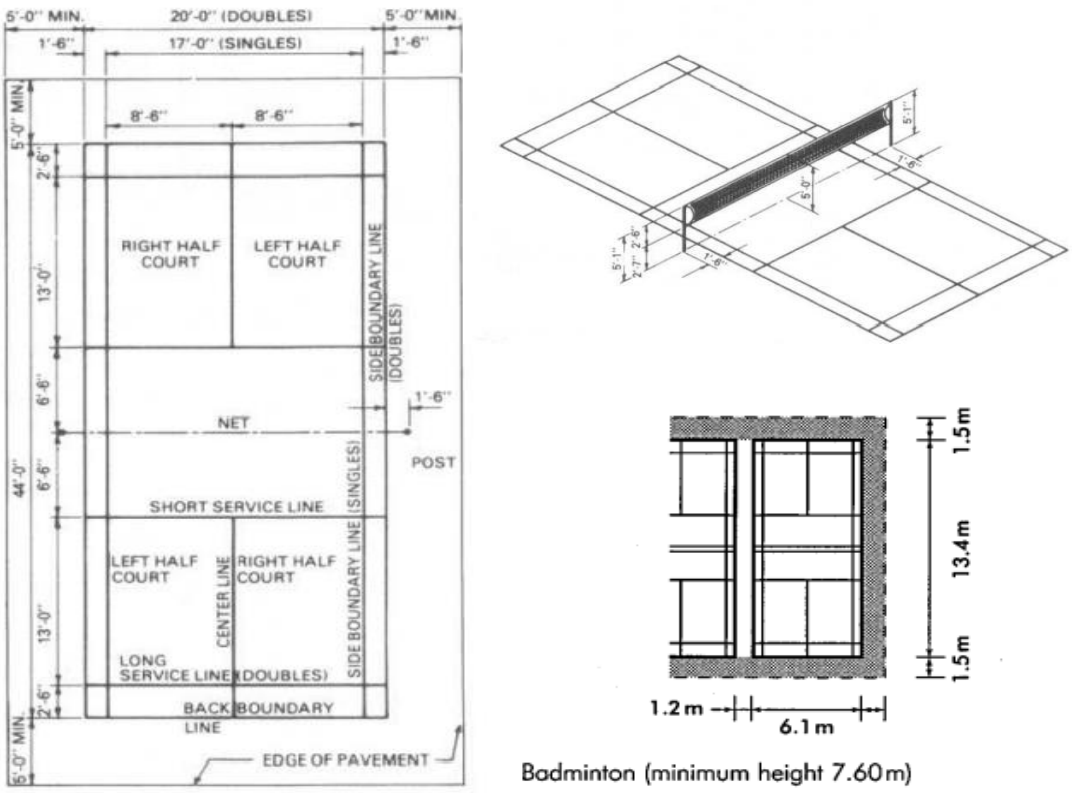


Figure 2.5 d Dimension of court

https://olympics.com/en/news/badminton-court-size-dimension-measurement-length-width-net-height-service-line

2.5.3.2 SWIMMING POOL

A swimming pool, swimming bath, wading pool, paddling pool, or simply pool is a structure designed to hold water to enable swimming or other leisure activities. Pools can be built into the ground (in-ground pools) or built above ground (as a freestanding construction or as part of a building or other larger structure), and may be found as a feature aboard ocean-liner sand cruise ships.

Many health clubs, fitness centers, and private clubs have pools used mostly for exercise or recreation. It is common for municipalities of every size to provide pools for public use. Many of these municipal pools are outdoor pools but indoor pools can also be found in buildings such as leisure centers. Hotels may have pools available for their guests to use at their own leisure. Pools as a feature in hotels are more common in tourist areas or near convention centers. Educational facilities such as high schools and universities sometimes have pools for physical education classes, recreational activities, leisure, and competitive athletic such as swimming teams.

Pools can be either indoors or outdoors. They can be of any size and shape, and in ground or above ground. Most pools are permanent fixtures, while others are temporary, collapsible structures. Various types of swimming pools can be listed below:

- Private Pools
- Ocean Pools
- Children's Pools
- Infinity Pools
- Public Pools
- Natural Pools and Ponds
- Competition Pools
- Exercise Pools
- Hot Tubs and Spa Pools

Figure 2.5 e Outdoor swimming area

Pools present a significant risk of infant and toddler death due to drowning. In regions where residential pools are common, drowning is a major cause of childhood fatalities. As a precaution, many jurisdictions require that residential pools be enclosed with fencing to restrict unauthorized access.

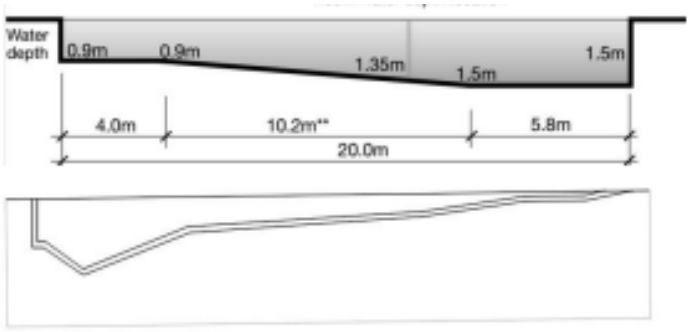


Figure 2.5 f Section of swimming pool

• Diving in the shallow end can also lead to significant head and neck injuries; diving, especially head-first diving, should be done in the deepest point of the pool, minimally 2.4 m (7 ft 10 in), but desirably 3.7 m (12 ft), deeper if the distance between the water and the board is great.

Pool Capacity

- Area for each swimmer: 36 sq. ft. (3.35 m2)
- Area for each diver: 100 sq. ft. (9.3 sqm)
- A pool of area 20 X 40 sq. ft. accommodates 14 people at a time (30- 40 peoples since everyone is not in the pool at once)

2.5.3.3 WAL CLIMBING

A climbing wall is an artificially constructed wall with grips for hands and feet. It is usually used for indoor climbing, but sometimes located outdoors. The concept of the artificial climbing wall began in the UK. The first wall was created in 1964 by Don Robinson, a lecturer in Physical Education by inserting pieces of rock into a corridor wall.

Figure 2.5 g Wall climbing

A climbing wall is nothing but a man-made simulated wall along with clenches or grips that help the climber to scale the structure. These grips can make the climb either difficult or relatively simple according to the climber's choice. These walls can either be made of solid blocks or it just may be a wooden creation. However, most of the structures today are solid, thick layers of board with either grips or holes drilled in it for support. Climbing walls are gaining so much popularity that many of those walls are constructed using metals such as aluminum, steel, etc.

2.5.3.3.1 Types of Climbing Wall

The most common climbing wall that you are bound to come across will be the one that is made of plywood. Given below are some of the climbing wall systems that you might come across:

- Stone coated panels

  Climbing walls are usually referred to as wall surfaces. In case of the stone coated ones, it would be the perfect choice for the budget conscious. That's simply because, this wall surface probably is least expensive one out there. This wall is a mixture of slight resin and sand, which comes a long way to give some friction during climbing.

- Stone coated Freeform

  This wall type is slightly expensive than the stone coated panels. This wall surface has comparatively more friction than the stone coated one. This wall surface too, though a bit costlier than the earlier one is affordable considering the aspect that it is very similar to the Digital Freeform wall surface, which is considered to be the best wall surfaces out there.

- Featured panels

  This type of wall climbing surface is no different from the natural rock formation. They have been accurately designed with cracks, pockets for acting as supports, etc. This wall has been made keeping the space constraint in mind. Therefore, these wall-climbing surfaces are perfect for gyms and other indoor sports centers. One of the best

things about this wall type is that it gives the climber different routes from which to choose and can make his climbing experience seem a lot of fun.

- Digital Free form Climbing walls

  This wall type is perhaps the state of the art, since they have been handing crafted to give the climber the real feel of scaling a natural rock formation. This wall type, unlike the featured panels, that offers a two-dimensional curve, offers a three-dimensional curve system. One of the best things about this wall type is that it is up to the climber, what shape he wants. All he has to do is use his imagination. Natural rock formation traits like crack lines, bulging laps, etc. can be created without any hassles.

2.5.3.4 LIBRARY

A library is an organized collection of sources of information and similar resources, made accessible to a defined community for reference or borrowing. It provides physical or digital access to material, and may be a physical building or room, or a virtual space, or both. A library's collection can Include books, periodicals, newspapers, manuscripts, films, maps, etc.

- Essential elements
- Entrance lobby
- Baggage space
- Receptionand Information desk
- Utilities such as toilet

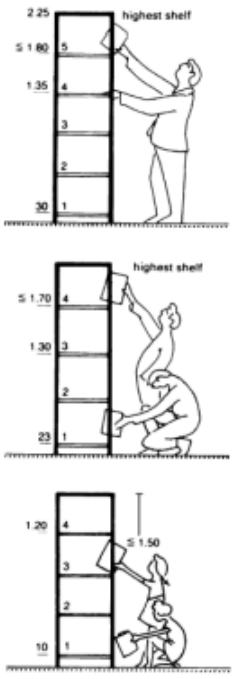


Figure 2.5 h Shelf height

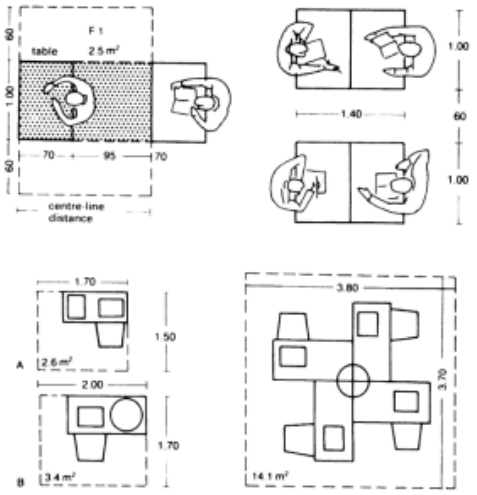


Figure 2.5 i Dimensions for Library

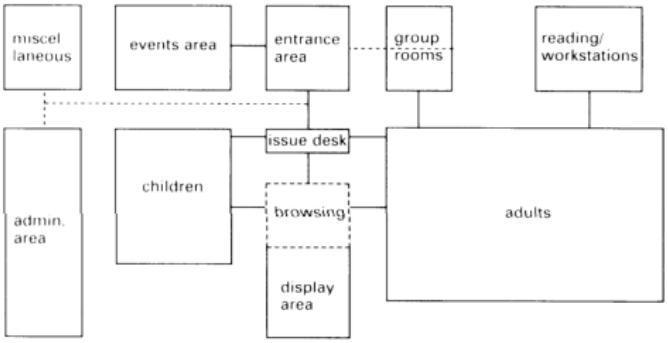


Figure 2.5 j Typical layout of library

- Main Library room
  - Help desk for supervision
  - Reading section
  - Book stacks
  - Periodicals
  - References Sections
  - Newspapers section
  - Lending Section

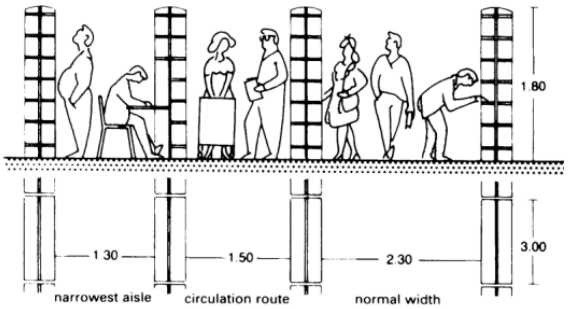


Figure 2.5 k distance between two shelves

- Administration
  - Librarians' office
  - Staff and worker's room
  - Processing room
  - Control/server room
  - Store room
- Other's facilities
  - Computer room
  - Audio-Visual room/multimedia

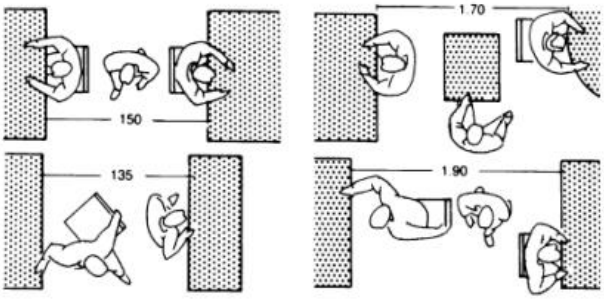


Figure 2.5 l distance between tables

2.5.3.5 YOGA STUDIO AND FITNESS CENTER

A standard yoga mat is about 24 inches wide and 68 inches long. To capitalize on the space you have, it is essential to space yoga mats at appropriate distances. Ensuring there is enough space for the yoga instructor to walk in between or for your students to take their place and practice comfortably.


Figure 2.5 m Yoga spaces and connectivity with surrounding

A minimum distance of at least 2.5 feet to 3 feet between yoga mats would help the students concentrate better due to good acoustic separation. Another way of looking at this is that a minimum separation of 6 square feet is essential, which will enable students to lie down and practice on either side.

Table 1:Dimensions for yoga room

Type Of Space	Storage	Area	Minimum Height
Yoga Studio for a small group of 10-20 members	Yoga mats, yoga balls, audio/visual systems, dressing room	~ 20 sq. ft. (20 ft * 20 ft.)	7'-10" minimum height ceiling
Yoga studio for a large group of up to 30 members	Similar to a smaller studio	~ 25 * 25 ft. or even 25 * 30 ft.	Similar to a smaller studio

FITNESS CENTER ROOM SIZE:

For 40-45 user = 200 sq. M.

For 12 users = 40 sq.m.

Clear room height = 3 m

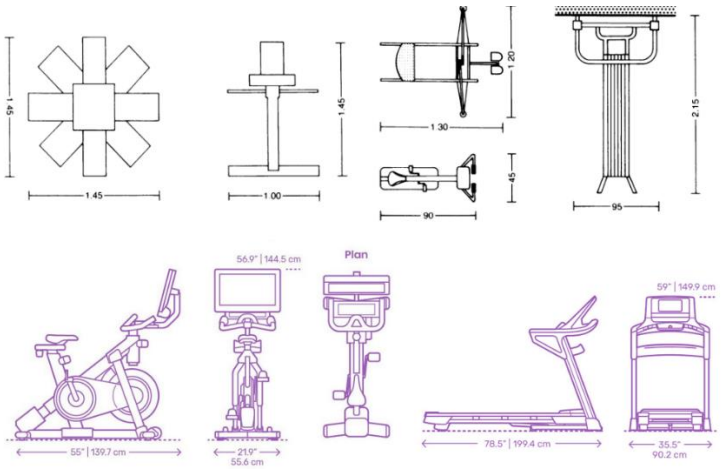


Figure 2.5 n Dimension of different type of gym equipment

2.5.3.6 SPA AND SAUNA

A sauna is a heated room that uses hot air and/or steam to clean and refresh the body, usually after physical exercise or as a method of relaxation. A sauna that uses steam is also called a steam room, and a sauna that uses only hot air is called a dry sauna. Saunas are commonly found in resorts and hotels, gyms, community centers, spas, and luxury homes, among other places. These rooms are usually lined from top to bottom with wood planks, usually cedar wood.

Figure 2.5 o Sauna

Sauna size depends on the type of sauna heater and the number of regular sauna users. The most popular sauna seating layout involves the presence of an upper and a lower bench. The upper bench is usually 18 to 24 inches wide by 36 inches high, while the lower bench is typically 18 inches high.

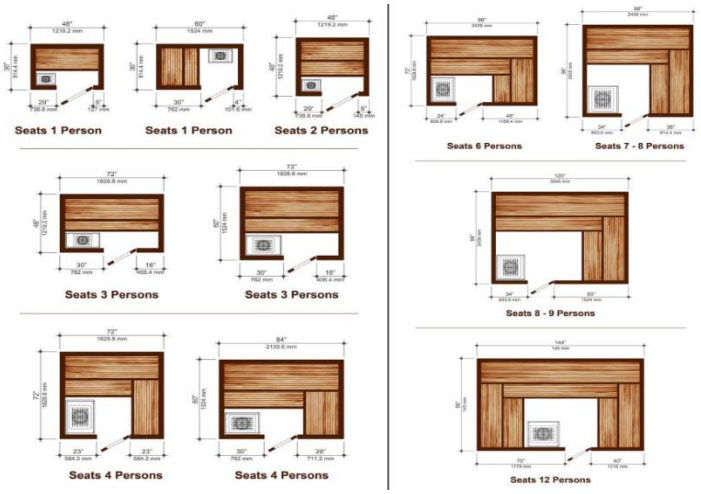


Figure 2.5 p Sizes of sauna

2.5.3.7 INDOOR GAMES

As if toys expanded every child's imagination, modern videogames take advantage of player's active involvement to open more possibilities than any other existing mediums. More and more people grow up playing video games, treating them not as an art form but also as serious media. In the last 30 years, as a form of entertainment, video games have evolved from confined arcade activities into a mature media Video games have deeply infiltrated our daily life and our society. Simply an area where we can enjoy variety of indoor games is gaming zones.

Figure 2.5 q Some indoor games

https://www.pallikkutam.com/edu-news/7-benefits-of-indoor-games

2.5.3.7.1 Arcade Games

Arcade Games constitute electronic appliances which are fully or partly controlled by computer. They are associated with electronic screens. The machines, appliances or game tables may not be unoperated. They are mechanically or electronically powered.

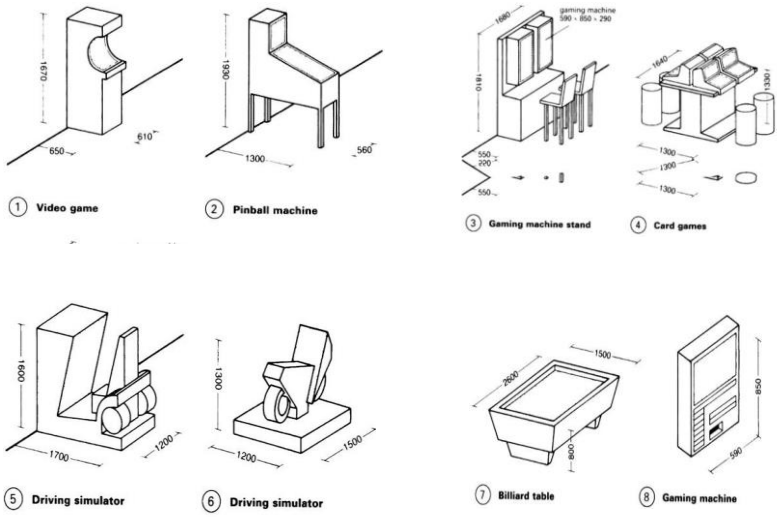


Figure 2.5 r Dimension of Arcade games

2.5.3.7.2 Bowling Alley

The most common type of lane is wood. Synthetics are becoming more popular, and some lanes are a combination of wood and synthetic. The lane is 18.288m from the foul line to the Centre of the headpin. It shall be between 41 and 42 inches in width. The lane plus the gutters shall not be less than 60 inches nor more than 60 ¼ inches wide.

Dimension of bowling balls

Diameter-21 Sem

Weight up to 7257 with finger holes

Diameter 16cm W

eight-3050g and 3150g

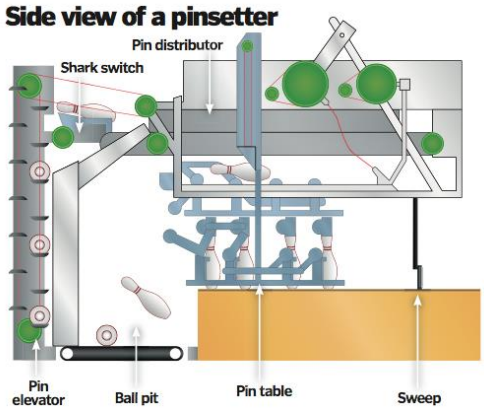


Figure 2.5 s Internal function of Bowling alley

Most modern balls are made of a composite plastic mixture, Skittles are usually made from hardwood of white color. Pins are also made of wood but are covered with plastic. Most common used bowling alley has two lanes with the dimension as follows:

Total length-25.55m

Width with two alleys-345sqm

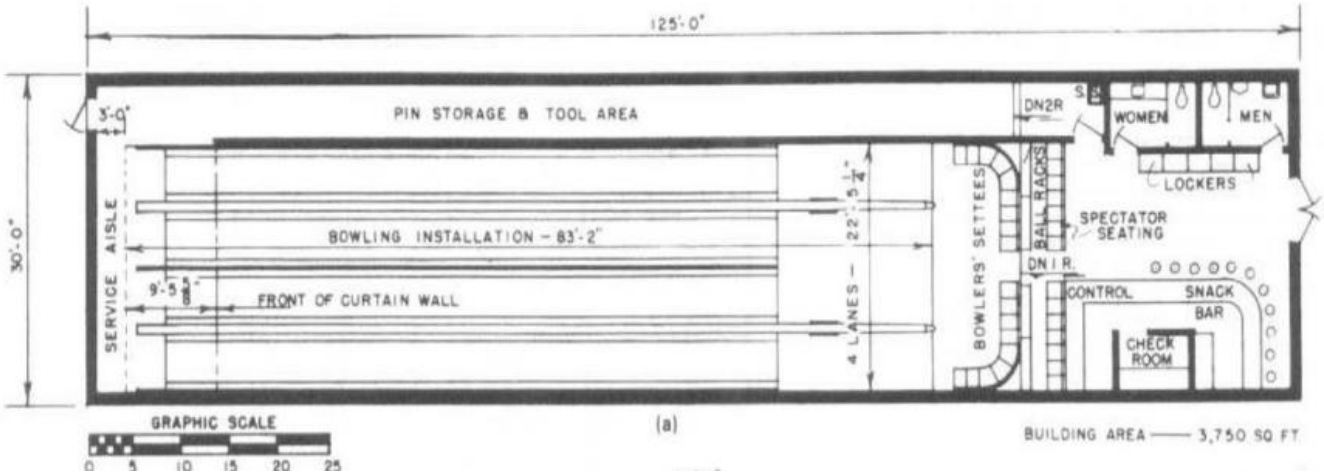


Figure 2.5 t Dimension of alley

2.5.3.7.3 Snooker and Billard table

Snooker is played on an English billiards table using 15 red, 6 colored and one white cue ball, Points are scored by pocketing balls and forcing an opponent to give away points through snookers. It may be played by two persons or a team.

Figure 2.5 u Snooker table

Equipment's:

Cue must be at least 91.4cm in length.

A standard snooker table measures: 11ft 8.5 inches x 5ft 10 inches (3569mmx 1778mm), though commonly referred to as: 12 ft x 6ft. Smaller 9ft 5 inches x 5ft 10 inches (2895.6mm*1554.48mm)

Tables are sometimes used. The height from the floor to the top of the cushion is between 2 ft 9.5 inches and 2 ft 10.5 inches (851mm and 876mm).

Size of Billiard Table=2.6mx1.5m

Size of Snooker Table=4mx2m

Min space required= 8mx6m

0.75mx (1.3-1.5m) space required to keep cues

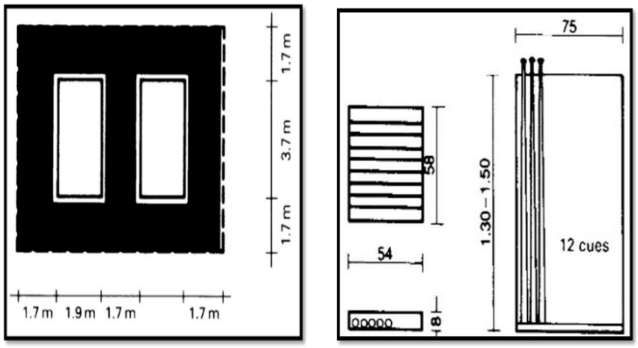


Figure 2.5 v Dimensions of table

2.5.4 RESTAURANT AND CAFÉ

Restaurants act as resting and refreshment part so the provision of eating is very essential in designing leisure or entertainment center. To make functional, the organizational sequence should be carefully planned. These facilities are dedicated establishment to serve food and drinks to the patrons. Catering facilities are usually required in workplaces and other institutions (factories, offices, schools, hospitals) but there is also provision for eating in the leisure i.e., restaurants and bars linked to shopping, sports and entertainment centers. The planning is basically guided by the adequacy of the space. When space is too small, labor time and effort are likely to increase and the volume and quality of output decrease. When it is too large, building and maintenance costs are excessive. Public access must look inviting and be separate from service access and waste disposal. Similarly, the exterior appearance should communicate clearly, with signs, lighting and menu displays, and convey an image of cleanliness. From outside, people should be able to view the interior seating, style and features.

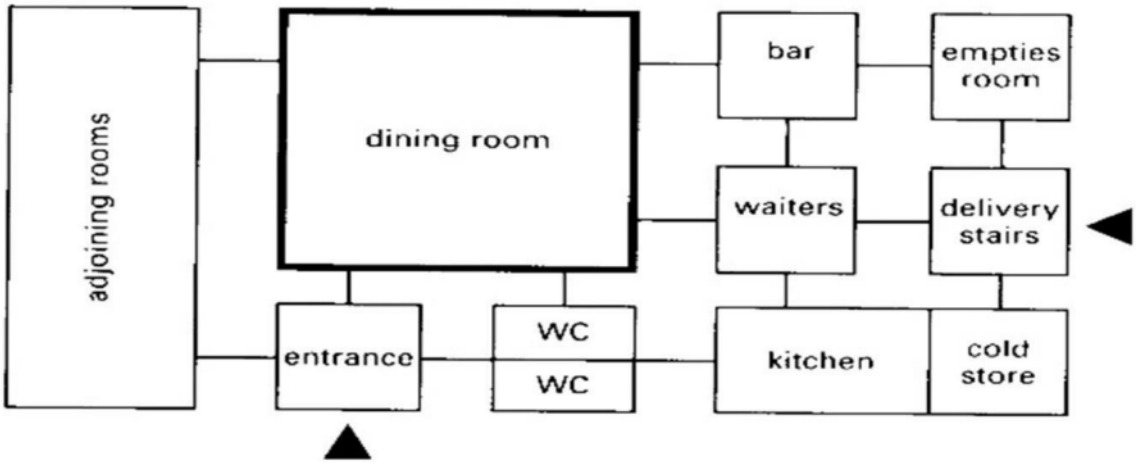


Figure 2.5 w Typical layout of Restaurant

Planning Consideration

- Planning should allow variety of seating arrangement.
- Larger regular spaces must be broken up with necessary screens or decorative features.
- The arrangement or layout should be very functional.
- Additional tables and chair should be available for flexible table grouping.

Space Requirements

The patron ‘s size and the type and quality of service should be considered.

Small children -8 sq. ft

Adult -12 sq. ft

Banquet seating -10sq.ft per seat

Deluxe restaurant -20sq.ft per seat

- The place settings for adults usually allow 24 inches and foe children 18 to20inches• Small tables, such as 24- or 30-inches square are economical for seating but are uncomfortable for large no, of people.
- A minimum passage area is 18 inches between chairs, and including chair area, tables should be placed 4 to 5 feet apart.
- A table length to seat four, six or eight is preferable.

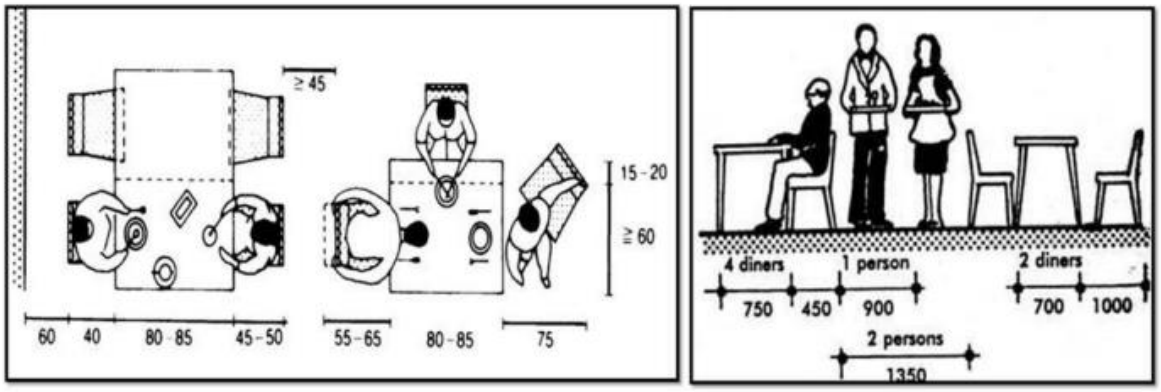


Figure 2.5 x Dimension of restaurant and circulation

Area Required

- Dining Room: 60% of total area
- Per seat: 1.5-2.15 sq. m
- Ratio of service area to total area: 25-50%
- Net kitchen area: 15-25%

- Aisle Width
- Main - min 2m width.
- Intermediate - min 0.9m wide.
- Side - min 1.2m wide.

Ceiling height

Table 2Ceiling height of dining room with respect to the floor area

Floor area	Ceiling height
<50sqm	2.5sqm
>50sqm	2.75sqm
>100sqm	3sqm

Toilet Requirement

Table 3Toilet requirement per person

Customer No.	Male	Female	Basin	Urinal
50	1	1	2	2
50-200	2	2	2	3
200-400	3	4	6	4

2.5.5 RESTROOM

A washroom for staff and other adults in the center (parents, students, visitors) is necessary to ensure privacy and personal hygiene. Adult washrooms can be shared in multi- purpose facilities. Any wheelchair-accessible WC should have at least one washbasin with its rim set between 720 and 740mm above the floor. Male wheelchair-accessible WCs should have at least one urinal with its rim set at 380mm above the floor, with two 600mmlong vertical grab rails positioned at either side of the urinal. While designing washroom areas, universal design should always be considered.

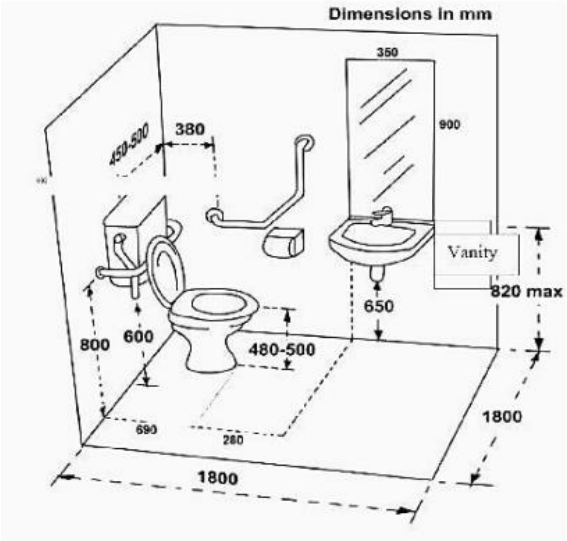


Figure 2.5 y Restroom layout

DIMENSIONS AND STANDARDS

- The normal washroom size - 1.0m x 1.53m to 1.2m x 1.91m
- The toilet center - between 16” and 18” from the closest wall or partition
- Turning circles of 1.50 m diameter inside the rest room i.e. 1.53m x 1.53m
- door - 3ft i.e 0.91m
- Ramp width should not be less than 1.2m i.e 4 ft

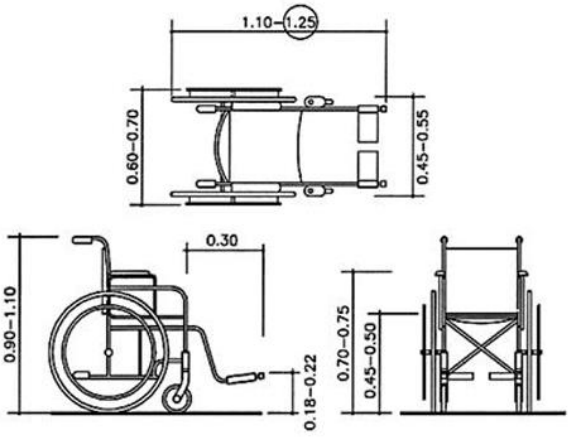


Figure 2.5 z Dimension of wheel chair

- Landing should not be less than 1.5m x 1.5m
- No ramp shall be steeper than 1:12 gradient
- If ramp slope is greater than 5%, one handrail will be required.

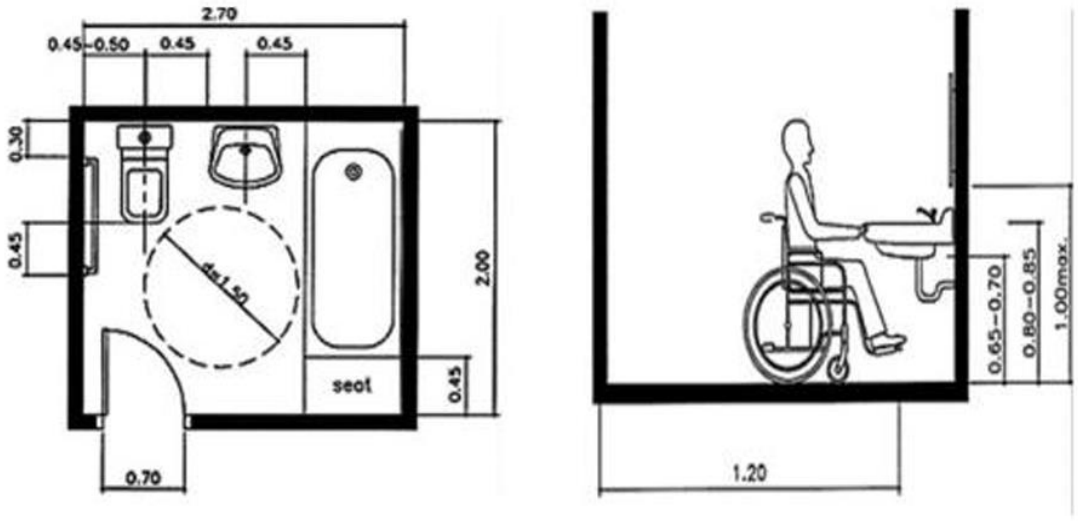


Figure 2.5 aa Differently abled restroom circulation

Table 4 Width and slope for differently abled person

Max. Slope	Max. Width(m)	Max. Rise (m)
1:10 i.e. 10%	1.5	0.15
1:8 i.e. 12.5%	0.06	0.075

2.5.6 PARKING

The act or practice of temporarily leaving a vehicle or maneuvering a vehicle into a certain location is called parking. Parking as part of an overall transportation system is one of the crucial issues of our times. As the number of automobiles increases exponentially, the need to house them in close proximity creates a challenging design problem.

Dimension of vehicles

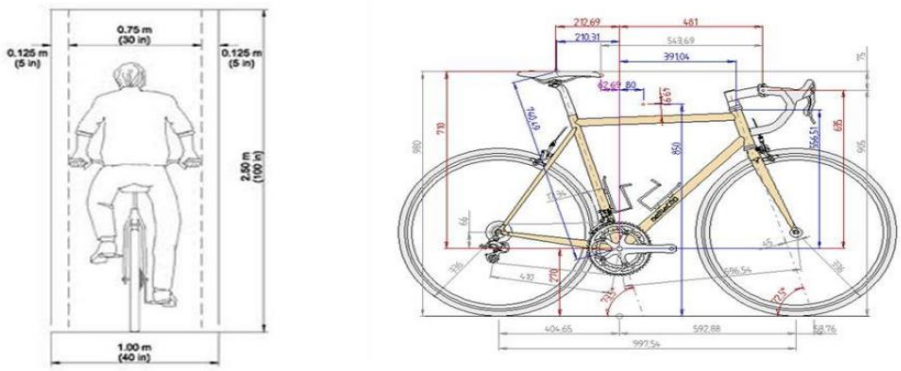


Figure 2.5 dd Dimension of cycle

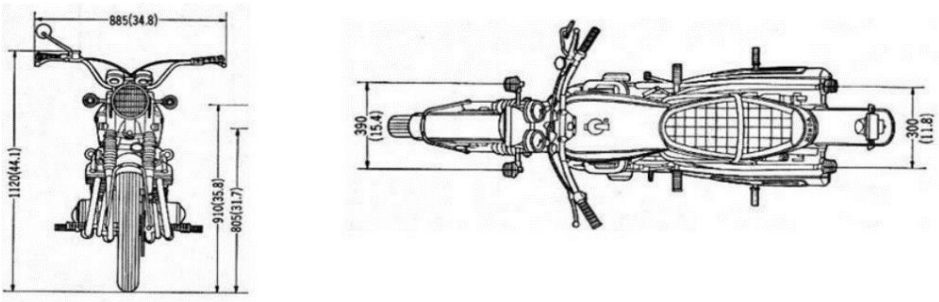


Figure 2.5 cc Dimension of bike

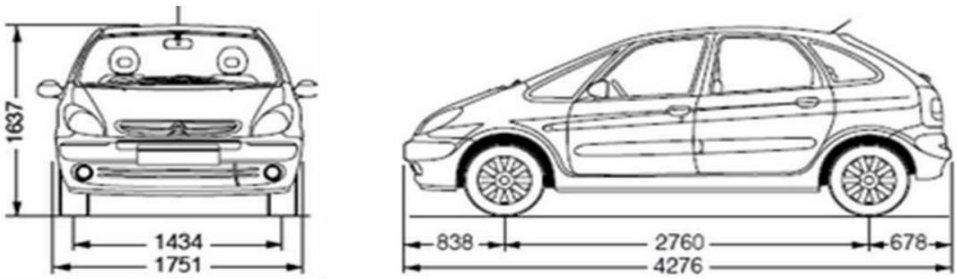


Figure 2.5 bb Dimension of car

The turning radius of a vehicle is the radius of the smallest circular turn (i.e. U-turn) that the vehicle is capable of making. Following is the turning radius of vehicle.

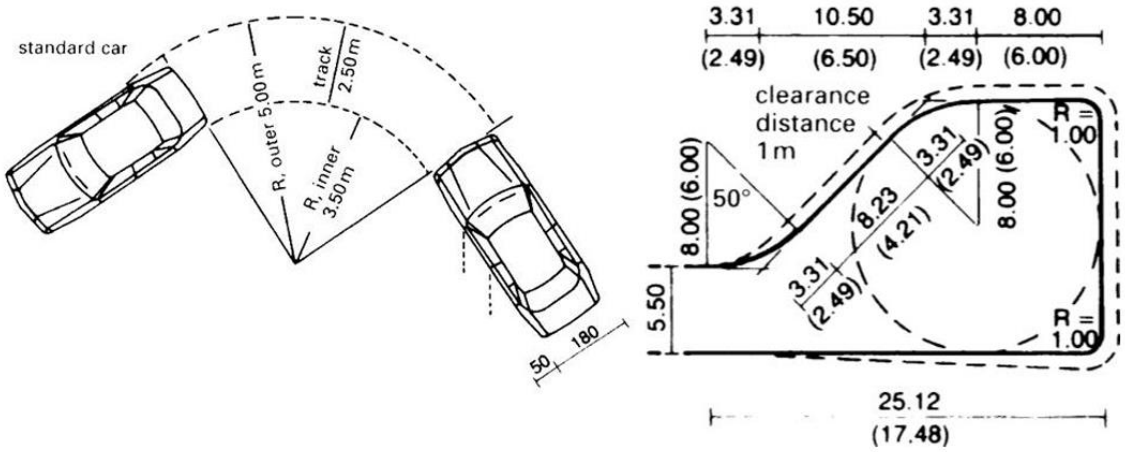


Figure 2.5 ee Turning radius

2.5.6.1 TYPES OF PARKING:

There are 3 types of parking on basis of where the automobiles are parked:

- Basement parking
- Outside or structured parking
- Surface parking

The illustration shows dimensions, turning radii and weights of typical vehicles to space requirements and regulation for basement parking:

2.5.6.1.1 Basement Parking

The Basement Parking space type refers to parking located below grade within an occupied building. First and foremost, parking structures—either basement, structured, or surface must provide for the safe and efficient passage of automobiles as well as visitors to and from their

vehicles. Therefore, attention should be given to providing the maximum driver visibility possible at all turning points along the roadway.

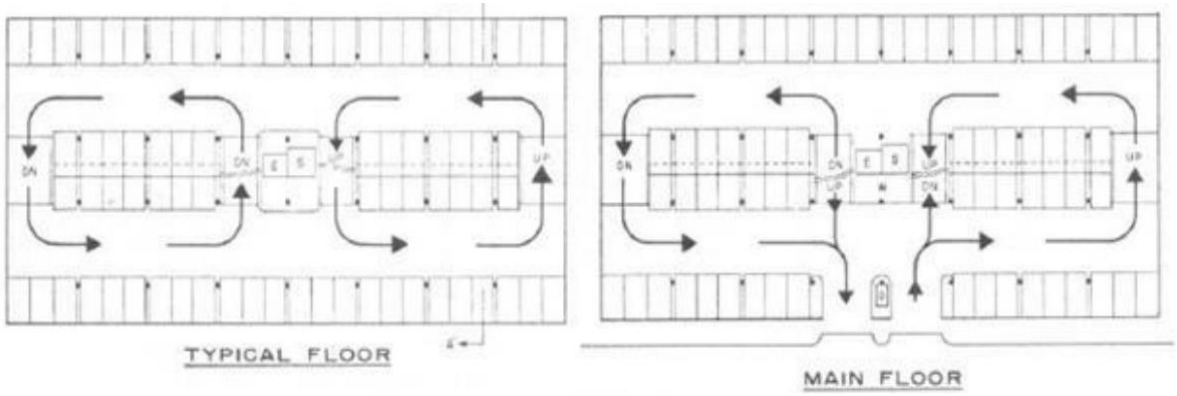


Figure 2.5 ff Typical plan of parking

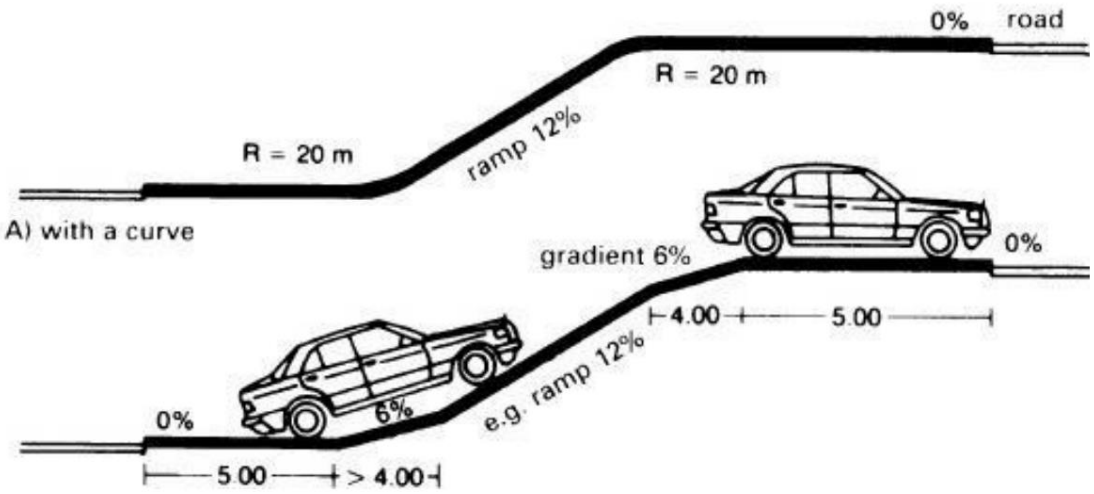


Figure 2.5 gg Gradient for access to Basement

Characteristics and features that distinguish the Basement Parking space type include:

- Signage and Way Finding

  Signage should indicate all major internal pedestrian access points as well as external major roads and buildings. In basement parking, pavement markings are reflective paint and traffic control signage is usually reflective metal with minimum 5" high letters.

- Ventilation

  The parking area is generally supplied with unconditioned air utilizing multiple speed fans, preferably interlocked with carbon monoxide detectors tied into an alarm system.

- Parking Management

  Usually, pre-manufactured booths with transaction windows and deal trays are Installed at vehicular entrances/exits to manage entering and exiting vehicles. • Security Protection Beyond parking management, several security measures are incorporated into typical basement parking spaces to ensure the security of visitors. These generally include: uniform lighting coverage, preferably with energy- efficient light fixtures; closed circuit television (CCTV) cameras; card reader access control for vehicle entrance doors; concrete filled protective bollards to protect vehicle entry keypads; and hydraulic lift wedge type barriers for egress control.

- Fire and Life Safety

  Proper notification systems, lighting, and signage are required to facilitate safe and speedy evacuations during an emergency in the basement parking spaces. This is usually accomplished with proper fire alarm wiring, pull stations, strobes, annunciators, and exit signage. In addition, exposed pipe sprinkler system is extended into the basement parking.

2.5.6.1.2 Outside or Structured Parking

The Outside/Structured Parking space type refers to an above-grade, ramp access, open-air structure specifically designed to accommodate vehicle parking. attention should be given to providing the maximum driver visibility possible at all turning points along the road way as well as designing stairways and lobbies to offer maximum visibility from the outside for security of the visitors.

2.5.6.1.3 Surface Parking

Outside surface parking refers to large paved areas used for extensive vehicle parking beyond the incidental parking provided for individuals, official government parking, and short-term drop off—located adjacent to a building.

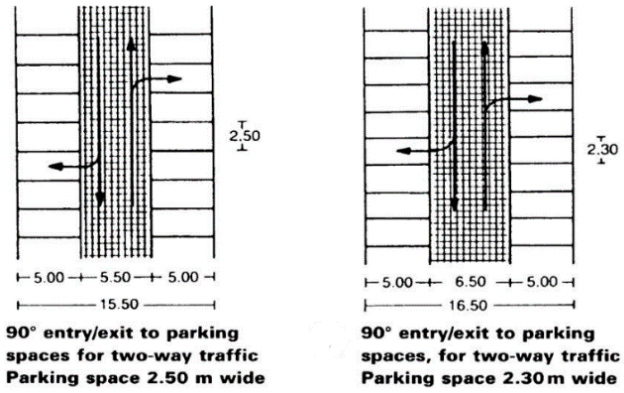


Figure 2.5 hh Straight Parking

- Straight Parking

  This type of parking is suitable two ways traffic and large no of vehicles can be accommodated in same length as compared to other types of parking. Parking bays are perpendicular to circulation road.

- Angled Parking

  This type of parking is suitable for one way traffic which has separate entrance/exit. It reduces the width of the parking lots as the vehicles are placed in angle. The parking bays are inclined in 30, 45, 60, 90 degrees.

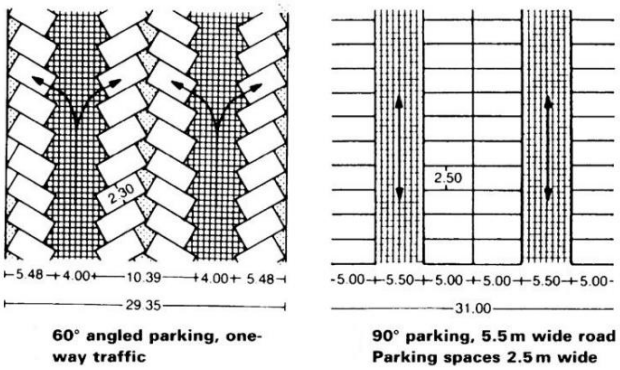


Figure 2.5 ii Angled Parking

- Oblique Parking

  This type of parking is suitable for two-way traffic and separate entrance/exit. It is also an inclined parking. Car parks including circulation (per car)

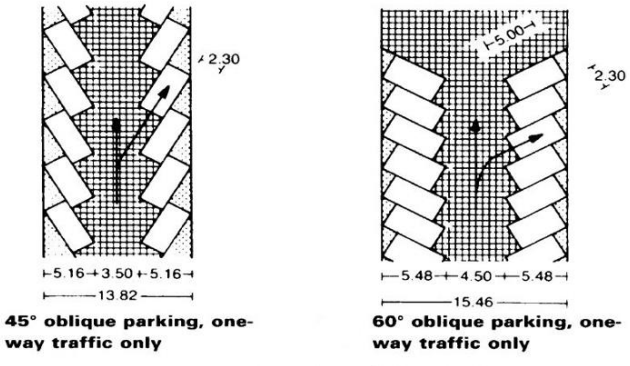


Figure 2.5 jj Oblique Parking

2.5.7 RAMP

A wheelchair ramp is an inclined plane installed in addition to or instead of stairs. Ramps permit wheelchair users, as well as people pushing strollers, carts, or other wheeled objects, to more easily access a building. A wheelchair ramp can be permanent, semi-permanent or portable. Permanent ramps are designed to be bolted or otherwise attached in place. Semi-permanent ramps rest on top of the ground or concrete pad and are commonly used for the short term. An exterior location is preferred for ramps. Indoor ramps are not recommended because they take up a great deal of space. Ideally, the entrance to a ramp should be immediately adjacent to the stairs. Following is some of the considerations to be taken while designing a ramp:

- Width

A ramp shall not be less than 1050 mm in width.

- Landing

A clear space of not less than 1500 mm x 1500 mm shall be provided at the head and foot of every ramp, i.e. door swing and alike shall not be allowed to swing onto the landing

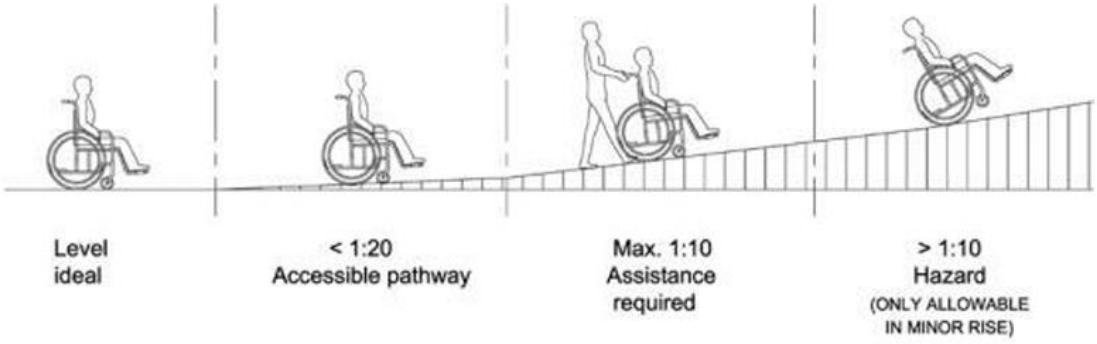


Figure 2.5 kk Running slope and length

Running Slope and Length

No ramp shall be steeper than 1 in 12, gradient except in the following situations of minor rise.

2.5.7.1 Requirements for Ramps

600mm 75mm If the gradient of a ramp is 1 in 20 or steeper, the ramp shall be provided with:

- • A landing of not less than 1200 mm long for each 10 m length of horizontal run
- Handrails on both sides; and tactile warning strips at the head, foot and landings.
- The above items shall not apply to ramp access to lift or ramp with a length less than 300 mm. An exterior location is preferred for ramps. Indoor ramps are not recommended because they take up a great deal of space. Ideally, the entrance to a ramp should be immediately adjacent to the stairs.

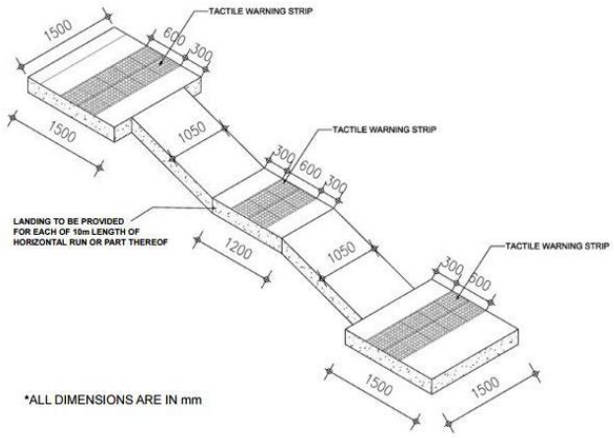


Figure 2.5 ll Tactile Warning Strips and Landings for Ramps

Design Considerations General

- An exterior location is preferred for ramps. Indoor ramps are not recommended because they take up a great deal of space.
- Ideally, the entrance to a ramp should be immediately adjacent to the stairs.

Ramp configuration:

Ramps can have one of the following configurations:

- Straight run
- 90 turns
- Switch back or 180 turn

Table 5 Requirement for ramp

Maximum slope	Maximum length	Maximum rise
1:20 i.e., 5%	-	-
1:16 i.e., 6%	8 m	0.50 m
1:14 i.e., 7%	5 m	0.35 m
1:12 i.e., 8%	2 m	0.15 m
1:10 i.e., 10%	1.25 m	0.12 m
1:08 i.e., 12%	0.5 m	0.06 m

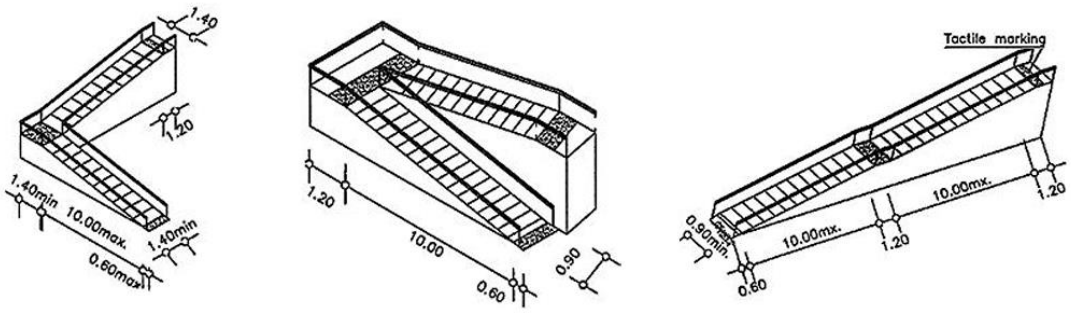


Figure 2.5 mm 90 Turn Ramp, Switch Back/ 180 Turn Ramp, Straight Run Ramp

Width

- Width varies according to use, configuration and slope.
- The minimum width should be 0.90 m.

Slope

- The maximum recommended slope of ramps is 1:20. Steeper slopes may be allowed in special cases depending on the length to be covered.

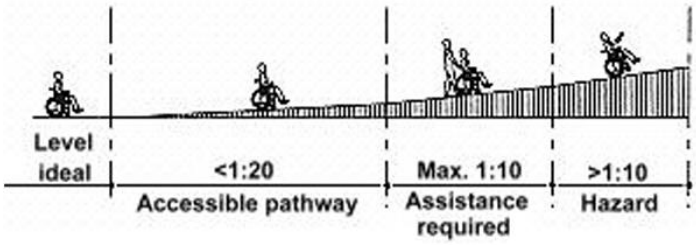


Figure 2.5 nn Ramp Slopes

Landings

- Ramps should be provided with landings for resting, maneuvering and avoiding excessive speed.
- Landings should be provided every 10.00 m, at every change of direction and at the top and bottom of every ramp.
- The landing should have a minimum length of 1.20 m and a minimum width equal to that of the ramp.
- A protective handrail at least 0.40 m high must be placed along the full length of ramps. • Forramps more than 3.00 m wide, an intermediate handrail could be installed.
- The distance between handrails when both sides are used for gripping should be between 0.90 m and 1.40 m.

Surface

- The ramp surface should be hard and non-slip.
- Carpets should be avoided.

Tactile marking

- A colored textural indication at the top and bottom of the ramp should be placed to • alert sightless people as to the location of the ramp.
- The marking strip width should not be less than 0.60 m.
- Adequate drainage should be provided to avoid accumulation of water.

3.CASESTUDY

3.1 NATIONAL CASESTUDY

3.1.1 SHREE TOLE COMMUNITY, BASUNDHARA

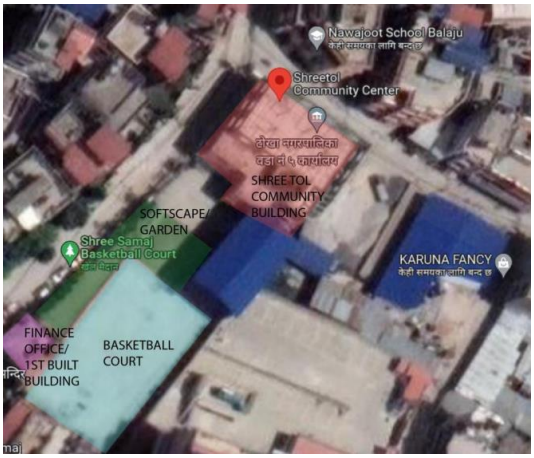


figure 3.1 a Locational plan of shree tole

Objective

• To know about actual condition of community center in Nepal.

• To understand reason behind the establishment of community center.

Introduction:

figure 3.1 b First building built in community as center

Shree tol community center lies in Basundhara area of Tokha municipality ward no. 5. It is more like communal building which is built in effort of community and government together. The site initially was public land was in danger of encroachment. So, in order to prevent such activities, the committee was formed with only building to the north of the site which is mentioned in figure below which is presently used by finance named (Naya paila ridh tatha sahakari sanstha)

Community Building:

figure 3.1 d Community center

figure 3.1 c Entrance of community center

Further through committee and joint effort of whole community the ground floor of main building was constructed for their own use and for community and upper floors up to 2nd floor were added with governmental and political support. Presently, the ground floor is used for shops which are provided in rent and the rent amount is used for maintenance of community building while 1st floor is used by Municipality office of ward no. 5 as it was only communal or governmental building in ward. Similarly, 2nd floor is used as multi-purpose hall for various communal functions and municipality meeting and activities. These are the image of the interior of the community building used by government and locals. Generally, in such community building the rent is not needed to be paid but for maintenance of building and for fees of cleaning workers the monthly rent is obtained from the shops in ground floor which keeps the community center self-sustaining.

figure 3.1 e Second floor used as multipurpose hall

figure 3.1 f Ground floor is used as shops

figure 3.1 g First floor is used as ward office

Basketball court:

It lies in southern site of premise. Before, establishment of ward office the basketball court was open was open for whole day but after establishment of office, it is open from 5-10 am in morning and 5-7 am in evening. But there are no any facility of changing room or sports tool room for supporting activities.

figure 3.1 i Basketball court

figure 3.1 h Storage near basketball court

Garden/ Softscape:

It lies along the basketball court. We can find the shrubs and grasses in periphery of whole basketball court but major gardening/soft scaping can be observed in western part of the court.

figure 3.1 j Gardern

Inference:

- Community center can be built in order to preserve the land from encroachment and other problem
- It could design with common use, as office as well as the building for community, Community building could be used for economy generation as well and can be designed in self-sustaining way.
- Community's feeling of ownership might loose with government ownership so, proper care should be taken for distribution of ownership.

3.1.2 GOKARNA FOREST RESORT

Objectives

- To study recreational facilities, evaluates the design, functionality user experiences.
- To examine the services provided on wellness of guests.

figure 3.1 k Location Map

Location: Gokarna, Kathmandu

Total land area: Approx. 470 acres

Structural System: RCC

Introduction

figure 3.1 l Gorkarna resort showing recreational area

Historically the private royal hunting ground of Kings of Nepal. A remarkable blend of Malla and Rana period architecture. A renowned recreational place at present context. Situated within the city limits of Kathmandu, Gokarna Forest Resort is located inside the serene temperate Gokarna Forest, the former private Royal hunting grounds of the Kings of Nepal.A winding road climbs leads through the forest up to the main complex, comprising amix of subtly majestic Malla period architecture, Rana period lodges, and sanctuaries harmoniously blending with nature. Further on exotic Forest View cottage rooms are set beside a century old restored Hunter's lodge. A quiet peaceful haven set between ancient towering trees with glimpses of the second fairway in the valley below make the perfect getaway for a few days of golf, relaxation and rejuvenation at the Spa, enchanting forest walks, and time closet to the nature.

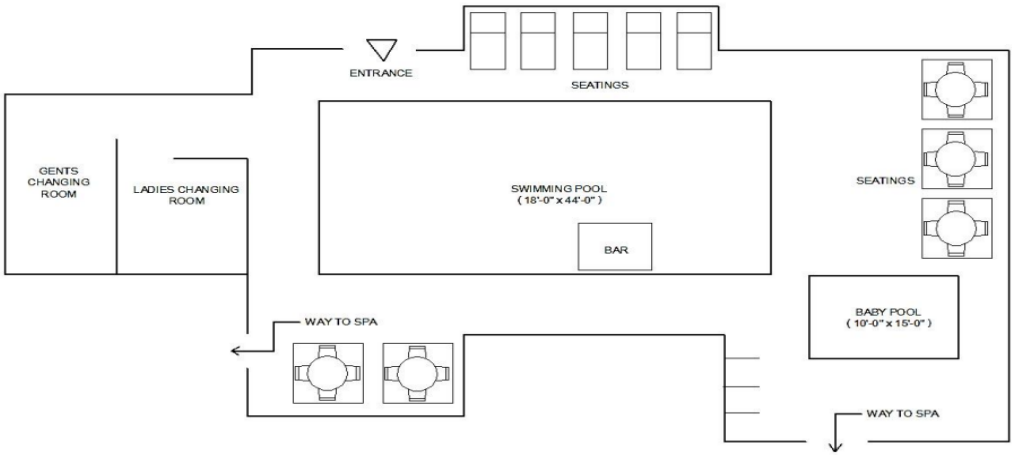


figure 3.1 m plan of Recreational area

Indoor Swimming Pool

figure 3.1 n Swimming pool

- Dimension 18’-0” X 44’-0”
- Proper lining of pool drainage 10” all around
- Circulation passage of 6’-0” segregating dry and wet spaces
- Provision of a Bar incorporated with the pool design
- Changing room: 10’-0” X 10’-0”
- Shower cabinet: 4’-0”X3’-6”
- Restroom: 3’-0” X 3’-6”

Various required spaces such as the seating space, cafe, changing rooms, locker area, a baby pool, spa sauna etc. were well organized in order maintain the smooth flow of the movements

Demerits

- Inadequate ventilation has resulted in condensation of the water on the northern walls, ceiling and windows, which may degrade the wall finish.
- Lack of sun shading on exterior façade.

figure 3.1 p Sitting spaces

figure 3.1 q Baby pool

figure 3.1 o Sauna

Merits

- Well planned and organized space with smooth flow of movement.
- Segregation of wet and dry space • Sufficient amount of daylight through full height windows and doors.
- Unpolished and non-slippery stone paving preventing slippery wet surface.
- Creative decoration, safe and well-maintained environment enhanced the essence of the space.
- Use of cool colors (shades of light blue and cream color) has also helped to enrich the environment.

figure 3.1 t spa area

figure 3.1 s Massage room

figure 3.1 r Gym in first floor

3.1.3 MADAN PURASKAR PUSTAKALAYA

Objectives

- Consideration for library design

figure 3.1 u Exterior view of pustakalaya

Introduction

The library is located at Patan dhoka, Lalitpur.

It is established in 1955 and reconstructed at 2015 by Abari. It has a built-up area of 165.36 sq.m.The programs included at this library are :

- **Reading/Working area**
- **Reception**
- **Chairman's Office**
- **Offices**
- **Archive**

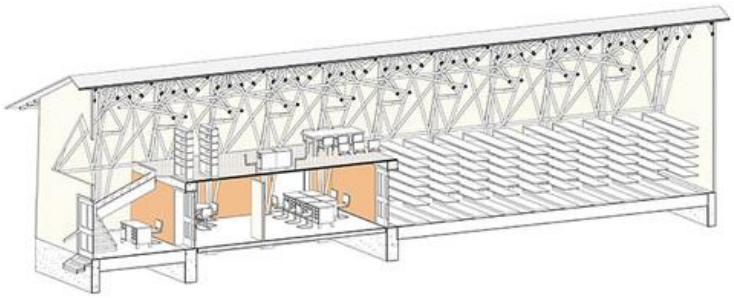


figure 3.1 v Interior of library

Madan Puraskar Pustakalaya hosts the largest archive of Nepali literature in the country and contains a wide range of historic books and documents. The library is divided into public and private spaces. Reception and Reading room are provided for public and the offices and archive area are private and there is no access for public.

Ground Floor consist of reception, offices and archive. The archive occupies 50.56% area of the ground floor. The reception area is provided with the seatings for 3 people where people can come and take out the forms for membership and can get books for study.

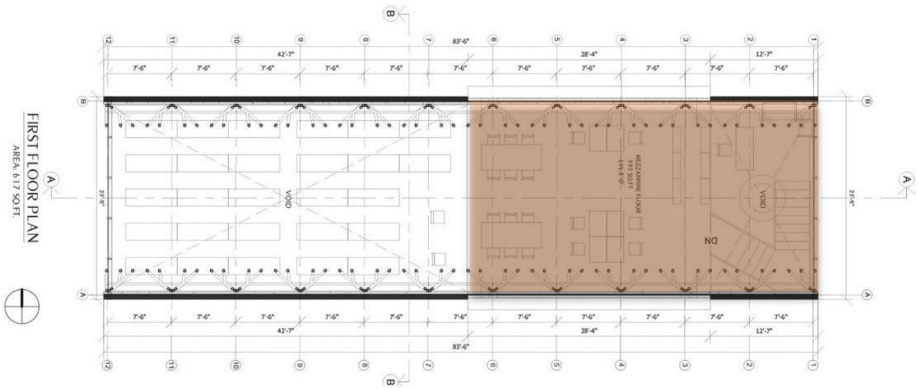


figure 3.1 w First floor of library

The offices are situated in between the reception area and archive. In the office area, small meeting space is provided beside the pantry. In the office area, the works like the entry of the new books are done. The work stations are also provided in archive area. In archive, there are three work station where digitization and scanning of the books are done. The digitization is mainly done for the book whose papers are delicate due to time.

figure 3.1 y Bamboo staircase

figure 3.1 x Bamboo roof structure

A bamboo staircase leads to the mezzanine floor where visitors can sit and study. From here, the guests can see the archive below and the impressive ceiling overhead. The reading area includes; 10 desk and chairs, one microfilm and a computer for the users. The computer has all the digitized books information and gives the access to the gallery collection of the library from Rana period. The seating in the working space is 10 in numbers. The working tables are placed just in front of the windows for the ligh

Building Structure and Materials

Rammed earth is used for the walls which have high thermal mass and results cool interiors in summer and warmer conditions in winter. Vernacular architecture with the locally available bamboo and mud tiles are used for the construction. The roof truss is of bamboo as well the railings and balustrades are also of bamboo giving the railings and balustrades are also of bamboo giving a pleasant, warm and welcoming environment in the library.

figure 3.1 aa Bamboo joints

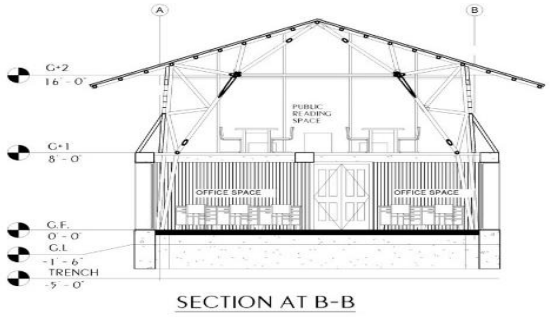


figure 3.1 z Section of Library

Exterior

The exterior of the library is also well played with architecture. Use of punctures in the wall, windows and the perfect blend of materials i.e., of bamboo, mud plaster celebrating the color of earth and celebrating vernacular architecture.

figure 3.1 bb Windows and exterior of library

3.1.4 SPORTS HALL-ARMY PHYSICAL SPORTS AND TRAINING A CENTER

Objectives

To study about sport complex and area.

- Location: Lagankhel, Kathmandu
- Owner: Nepal Army
- Area: 4 Ropani- 14 Anna - 2 Paisa 2 Daam (2499 m2)
- Floor Height: 10 m.
- Capacity: 1000 • Structural System: Space Grid Roof Truss
- Flooring: Wooden Planks
- 2Entry and 4 Exits (4‘- 6”)

NA sports complex is basically dedicated to the Nepalese army as well as used for national games and sports seasonally. It occupies a huge area in Lagankhel that belongs to Nepal army. The complex consists of a sports ground along with a practice ground towards western part of the main ground. A covered hall, multipurpose hall, medical room, sanitary facilities, barracks, parking, stores, dining areas, water supply system etc. are allocated at the most feasible distances from main entrance to the complex.

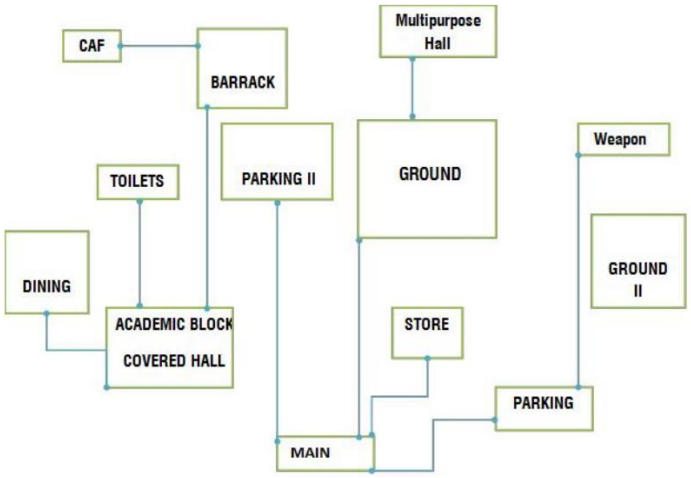


figure 3.1 cc Plan of sports complex

GROUND

- Ground is surrounded with a band of running track around which soft walking surface is provided
- Width of running track: 34’-3”
- Outer ring: 24’
- Drainage: width -2’7” making a ring encircling the ground.

figure 3.1 dd Running track

STANDS

- Inclination of the stand is 30º
- Capacity: 500-600
- VIP seating to the middle of the stands for spectators
- Toilets placed under the parapet. • A dash of 12’ width, 4” high is provided in front of the VIP section which maintainsaclear gap between the ground and the spectators.

figure 3.1 ee seating area

GYMNASIUM

- Width :13’-0”
- Length :37’-3”
- Height :8’-0”
- One machine occupies :15’-4”X 9’-10”
- Absence of proper light as well as ventilation
- The room height ratio is not sufficient
- Insufficient aisle for circulation
- Room size not adequate for relative activity

figure 3.1 ff Gym

COVERED HALL

The academic block house a covered hall for sports within it along with gymnasium, changing room, toilets, lockers, medical rooms, training classes, gallery etc.

- The covered hall occupies a total area of 2499m2 (arena)
- Height = 10 m
- The hall is rectangular in shape with seating through its horizontal length on either side.
- Capacity = 1000 at a time
- 1 entry and one exit on the west and eastern wall respectively
- Similarly, 4 escape routes – 4’7” wide are provided- a pair on southern and northern walls

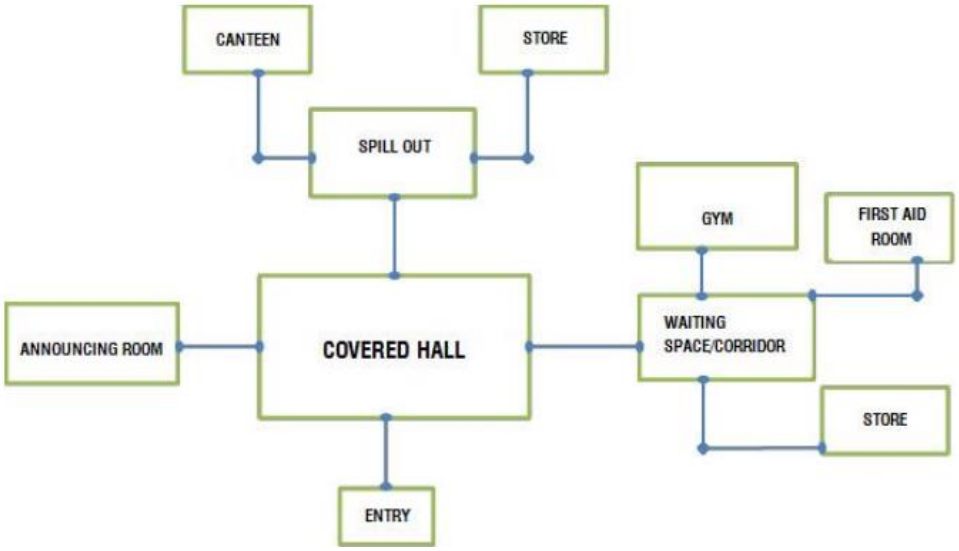


figure 3.1 gg Flow diagram of covered hall

figure 3.1 hh Covered Hall seating area

STRUCTURE

- Use of Space grid roof truss for a clear span.
- It also creates a pleasingaesthetical appearance
- Flooring: - wooden planks
- Fence barrier height of 1’9”
- Upstairs VIP seatings
- Riser height 6”
- Proper lighting and maximum daylight penetration through skylight.
- Types of light used is focus light of 36 number.
- Sufficient cross ventilation.

3.1.5 Lainchaur Park

Objective:

• To study the functioning of playgrounds and kind of user of particular space.

Introduction:

Ncell Axiata Limited as a part of its Corporate Social Responsibility (CSR) initiative has taken up the responsibility for building and maintaining of iconic Lainchaur ground at the heart of the city. Its aim is to greatly benefit people of Kathmandu. It includes features such as a mini football ground, basketball court and green garden but the initial plan also included children's play areas, open gym etc. as well. The green park is constructed in a 54,921 sq ft. area.

Planning and design features

The designed space with the facility of basketball ground and mini football ground has facilitated the school and college lying within the premises of park and also influenced local youth towards sports. But, being surrounded by the busy road and being within the heart of city it might not be suitable for children due to high risk of accidents. In present condition we might not find the greenery but the trees planted at the edge of park would benefit the surrounding in longer period of time or even impact on maintaining the soothing climate in space.

figure 3.1 ii Plan of lainchaur

Source: Twitter

Being in heart of Kathmandu, it intended to incorporate the traditional style and design with modern function making a playground as well as leisure space for recreational activities and refreshment.

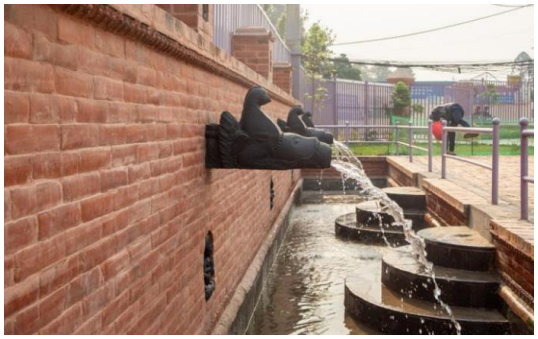


figure 3.1 kk Dhundedhara in park

figure 3.1 jj pati is placed in park

Inference:

• Being in the modern setting traditional elements and components could be included within the design,

• Being within the center of the city, only youths and young generation attracted to space.

3.2 INTERNATIONAL CASESTUDY

3.2.1 FISTENBURG COMMUNITY CENTER

Objective:

• To study about design which eco-friendly and sustainable green building

• To study about optimization of function within the community center according to international standards

Project Summary

• Location: Vancouver, Washington

• Gross Sf: 80,982 square feet

• Building Footprint: 64,003 square feet

Figure 3.2 a Fistenburg community center

• Cost: $17M • Completed: 2007

Introduction:

The LEED Gold Certified Furstenberg Community Center creates an enduring model of civic architecture and a source of pride for the city of Vancouver. With thousands of visitors daily, the Center provides an unequaled opportunity to demonstrate to the public the benefits and beauty of successful green design. It creates an enduring model of environmentally responsible civic architecture while providing a wealth of recreation and community services for this growing community. The community spaces incorporate child watch, a teen lounge and game room, a senior lounge and resource room, and meeting rooms It has multi use facility that

combines recreational and community spaces with public services. This multi-use community rooms seats up to 350 people, address the lack of meeting and gathering spaces in east Vancouver and provide a venue for City Council meetings, social dances, performances, neighborhood fairs and community forum. (Opsis, 2020)

Design

The building and site were carefully designed to seamlessly integrate a now complete city branch library (also designed by Opsis), a future lap pool, and a future arts and crafts wing, which will reinforce the civic identity of this facility. Families have the opportunity to visit the site together, using library and community center resources to enjoy a wide range of recreation and learning activities. The recreation program includes: • Swim and warm water leisure pools, • A two-court gymnasium, Fitness space, • Aerobics dance studios • multi-purpose activity spaces.

Figure 3.2 b Swimming pool area

Figure 3.2 c Children area

1. Library, Completed 2010 2. Courtyard with Spray Ground

3. Bus Stop

4. Future Lap Pool

5. Bike Parking

6. Firstenburg Community Center

7. Walking Trail / Service Lane

8. Porous Concrete Paving 9. Established Coniferous Forest

10. Future Parking

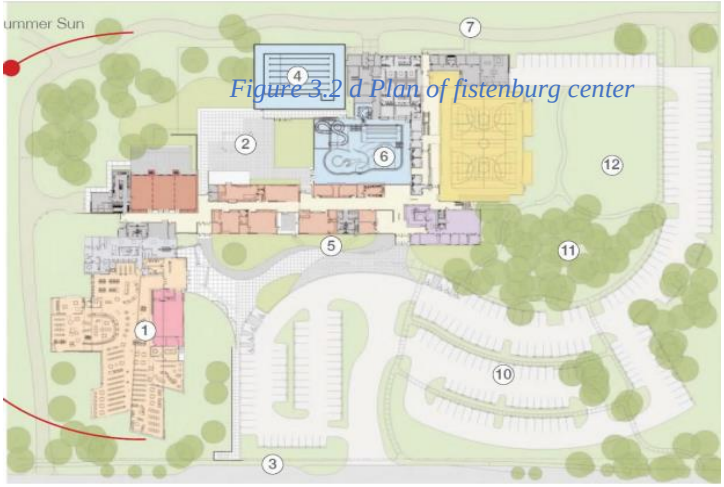


Figure 3.2 d Plan of fistenburg center

Land use and site ecological factors

It is a two-level building massed to reduce the development footprint, preserve mature tree stands and enliven the facility by concentrating activity and social spaces. The footprint and position of the building are a result of careful analysis of the areas of healthy and significant trees, solar orientation, prevailing wind direction, noise from the adjacent street, and program requirements. The building takes advantage of the park-like setting with large windows for daylighting and courtyards to allow interior functions to participate with the natural landscape. Native droughttolerant planting was integrated into the coniferous forest ecology creating habitat for birds and other species. Use of alternative transportation is encouraged by building a bus stop and shelter, providing ample bike parking and designated carpool parking and creating pedestrian links to an adjacent park and future regional trail. The parking lot's organic shape maximizes the number of significant existing trees retained, while its use of porous concrete and drainage swales means that all of the stormwater is managed on site with no impact on the municipal system. (Opsis, 2020)

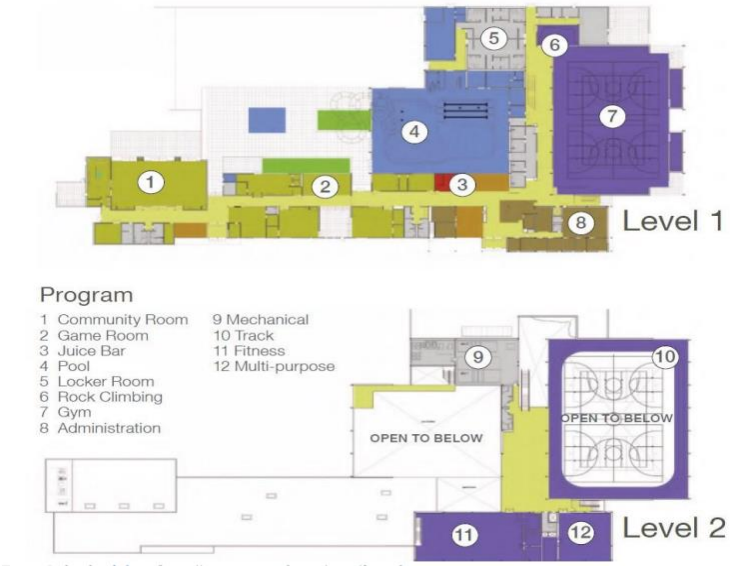


Figure 3.2 e Floor plan

Energy conservation

• Maximization of transparency between space for proper use of daylight in entire building,

• Reinforcing passive cooling opportunity by strong connection of building with site and provided welcoming open display of recreation and community spaces,

• Radiant concrete slab used to heat and cool for maintaining comfortable temperature using minimal energy • Mass of concrete floor and thermal mass wall used to store heat or coolness to decrease effective exterior temperature change,

• Passive system such as: automated natural ventilation and shading device blocked summer direct sun causing less heat gain and allowing heat to building and thermal mass in summer for heating effect.

A central heat pump recovers waste heat in the summer and uses it to heat the pool and domestic water, often allowing the 96% efficient boilers to shut down entirely. Daylight sensors integrated with dimmable energy efficient lighting fixtures eliminate the use of artificial lighting whenever possible. (Opsis, 2020)

Figure 3.2 f Voild for skylight

Conservation and reuse of material

Use of unnecessary materials was eliminated with the use of exposed steel structure, ground face concrete masonry block walls, and concrete floors, and passive heating and cooling eliminates substantial need for ductwork. Material waste was also considered during construction as the contractor was able to recycle 99.4% of all construction waste. (Opsis, 2020)

Figure 3.2 g uses of acoustics wall paneling

• 29% recycled material used for construction

• 56% Of Wood Base Building Products are Forest Stewardship Council Certified

• 41% Regional Materials Manufactured within 500 Miles used for Construction

• 99.4% Construction Waste was Recycled (Opsis, 2020)

Indoor air quality:

Figure 3.2 h Large openings in wall

Ample daylighting, natural ventilation and non-toxic finishes help Firstenburg Community Center provide a healthy environment for the community's health and recreation activities. The design team used the Portland Daylighting Lab's artificial sky to model a variety of monitor and sunshade configuration possibilities, Air quality is further improved by CO2 sensors and low-level trickle vents that ensure sufficient ventilation while minimizing energy loads. The volatile organic compounds (VOC's) are avoided as much as possible. In the natatorium, low level exhaust and ultraviolet secondary water treatment reduce air-borne chlorine contaminants while fabric duct work can be laundered to maintain a clean air distribution system. (Opsis, 2020)

Inference:

• Use of passive system for heating and cooling and proper adjustment of building with site context could conserve extensive amount of energy and also makes the building system more economical

• Use of native vegetation accord to surrounding and reuse of grey water requirement could reduce water requirement of building

• Proper transparent material use could help to achieve daylight for every part of building

• Proper integration of function and facilities with proper planning considering ecological factor, energy flow, water circulation, proper material use could result good green design.

3.2.2 REHOVOT COMMUNITY CENTER

Architects: Kimmel Eshkolot Architects

Area: 2700 m² • Year: 2016

Project Manager: Miki Gronsky

City: Rehovot

Country: Israel

Introduction

Creating a new urban plaza, the project includes studios for dance, music, sports and a library. Completed in 2016. The community center includes a variety of spaces, such as an arts and crafts workshop, music rooms, dance studios, martial-arts studios, a multi-purpose hall and a 'youth wing'. Next to the main building is a library, which operates as a multi-media center, attracting visitors of all ages for a variety of activities. The two buildings are designed to operate together and separately.

The project is built in a new neighborhood in the city of Rehovot,

Figure 3.2 i Plan of rehovot center

called New Rehovot, which is an area in development stages. The site is located in the center of the neighborhood which is designated for public buildings; some of which have already been built, such as an elementary school and a sports-center. Tall residential buildings are yet to be built in the area.The intent to place the building in the center of the neighbor was to instantly attract the public. There are designated areas for certain age groups such as the youth center or preschooler's zone. These areas allow parents to let their kids enjoy some free time while enjoying their visit and can leave them there while they take a trip to the library or elsewhere, they want to. The building is completely ADA accessible and allows people with disabilities to have the same experience as people without disabilities

Figure 3.2 j Main building of center

Located in an open area, the entire building is about 27,000 sq. ft. and about 56,000sq. ft. including the outside land (open field, basketball courts, etc). As in the plan, the attraction has some exterior aspects that makes it very useful for the users who wish to be on the outside spaces rather than the inside. It is fairly close to small residential areas which is in a walking distance. In addition, it is accompanied by dog parks, small forests, public gardens, sports facilities and spas, theatres, libraries, etc. This area specifically is very well-known for having many attractions that keep the city alive and its residents constantly moving.

Since the scale of the urban assemblers in this area is quite big, they wanted the buildings to introduce an urban-friendly scale, meaning that not only the users will enjoy the inner piazza within the project, but also pedestrians would take the short-cut and stroll through the project while going somewhere else. This idea was one of the generators of the design, and led top Lanning of the two buildings around a protected courtyard, which also connects between the school on its east side and the sports-center to its north. The main building has two floors, where the upper floor is hovering over the ground floor providing shading from the hot summer sun. It is also designed in a way that exposes the activities, such as the dance studios, in order to attract people to come and participate.

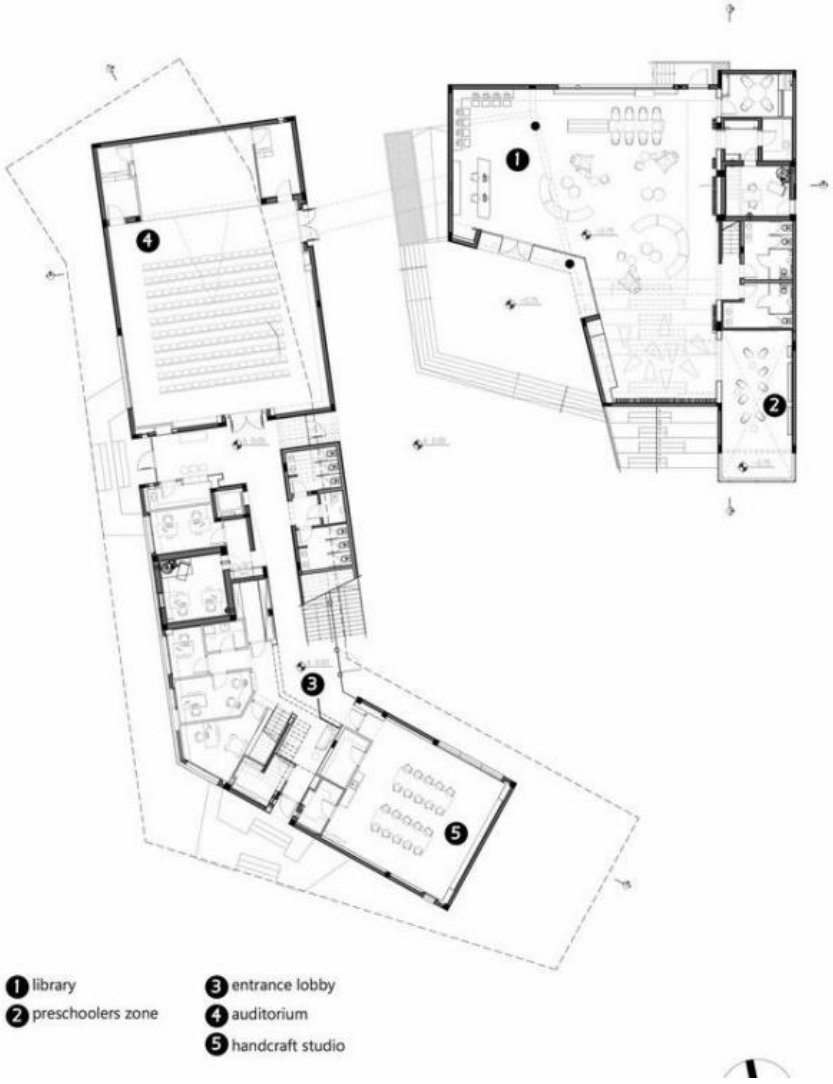


Figure 3.2 k Plan of center

DESIGN CONCEPT AND STYLE

The Architect's concept was to design buildings that operate together but are completely separate. The structures introduce an urban-friendly scale, meaning that pedestrians would be able to enjoy its presence, take shortcuts and stroll through the project while heading somewhere else. By doing so, both pedestrians and users have similar experiences but from different perspectives. This idea led to the planning of the two buildings around aprotected courtyard, which also connects between the school on its east side and the sports center t its north. The design concept also follows some principles of design like symmetricity, balance, massing etc.

Figure 3.2 l Design phases

Interior Design

When the users first enter the space, they greet with a small waiting area a reception area. This is merely an area that provides helpful information regarding the different activities, hours of operation and extensive way findings. The main building consists of two floors, where the second-floor cantilevers are over the ground floor acting as a shading mechanism from the intense summer sun. The exterior of the second floor has a double glazing, followed by a cherry wood cladding which alternates in pattern. Some are flush and others are rotated at a 45-degree angle. This type of design exposes the activities happening inside, allows some sunlight to penetrate the space and give users a view to the outside. In addition, because the spaces are partially visible, it causes pedestrians to think about what is going inside, thus attracts them.

Cross from the main building lies the library, preschoolers zone and a few breakoff spaces. The space is bright in color and gives a warm and welcoming feeling. All case work is customized and some has two purposes rather than one. For example, some tables are used as book shelves at one end and a table for 8 at the opposite

end. Also, all the furniture are mobile which makes the space very flexible and can accommodate large groups of people.

Sustainable Approach to The Building

Sustainability is of major importance in the project. The roof of the library is a green roof which is a very sustainable aspect. The vegetation absorbs the heat which can be transferred to the inside, creating a warm interior. The brisesoleil are covering the long facades of the hovering volume, creating a continuous appearance, while shading over large windows against the intensive Israeli sun. Indoors, the brise soleil creates a varying pattern of light and shadow over the white walls and dark floors. Theeastand the west facades are treated with shading elements of bamboo profiles, and the courtyard is partly shaded throughout the year, while also being protected from street noise. The interesting part about these shading devices is that the materials of bamboo polymer is especially designed for outdoor conditions, bringing a sense of warmth to the environment.

Conclusion

This community center was completed in 2016; therefore, it is up to date with the modern installation methods, materials and finishes. It meets all the qualitative and quantitative needs. By using contrasting materials such as wood, metal and concrete, its physical appearance stands out and quickly grasps the public’s attention. People of ant age, ethnicity, sex, etc., are able to use the space.

Although it is the first building of its kind, it sets high standards for the buildings that will eventually come after. Kimmel Eshkolot Architects has really made a statement for modern architecture and continues to strive better. Projects such as this one will be the start of reformation and Israel will slowly become a place of beauty and harmony. The colors used completely compliments its site and context. It does have a simple design and is very open and fluid, both the interior and exterior are aesthetically pleasing. This community center has a lot of impact on the people it serves.

Figure 3.2 n Bamboo as shading element

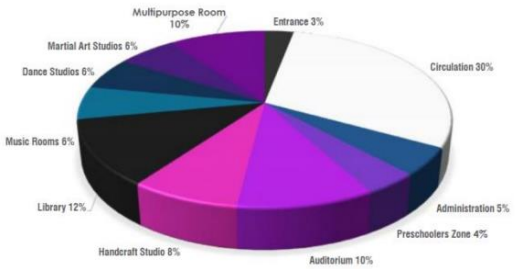


Figure 3.2 m Analytical study of spaces

The community center provides spaces such as library, arts and crafts workshop, music rooms, dance studios, martial-arts studios, a multi-purpose hall and a 'youth wing', it serves people of all age groups specially the youth age group. These spaces and activities allow people to enjoy their time and release the stress they have. The social bonds that are created at community centers help build strong, safe and inclusive communities; social interaction, volunteerism, civic pride and aesthetics all play a role. After-school programs can help deter at-risk youth from criminal activities and can provide a constructive environment. Design does not begin and end at the exterior wall of a building. The context and location are integral to formulating appropriate and functional interior spaces. The surrounding conditions are very essential factor in a design process.

3.2.3 CHONGQUING TAOYUANJU COMMUNITY CENTER

- Location: Chongquing, China
- Area: 10000 m²
- Year: 2015
- Architects: Vector Architects
- Architect In Charge – Gong Dong
- Structural Consultant: Congzhen Xiao
- Materials: Wood, Concrete and Steel

Introduction

The community center is located in the mountains of Taoyuan Park in Chongqing. The starting point is attempting to merge new building outline with the existing wavy topography. Instead of building an “object” in the field, the aim was to create an imagery of fusing architectural form and hilly landscape together. Green roof and green walls assist to blend the volume into its natural environment, and enhance the thermal co-efficiency of building envelope.

Figure 3.2 o Chongqing Taoyuanju Community Center View

The relationship of in and out of architecture spaces is an important aspect of this design as well. Comprising three separate volumes that each house a different function, the center serves as a cultural, sports and health hub for the local community. A continuous roof connects the three independent buildings into one unified volume. It slopes up and down responding to the hilly site. At the same time, it frames out two courtyards: a sloped garden, and a green plaza where community activities take place.

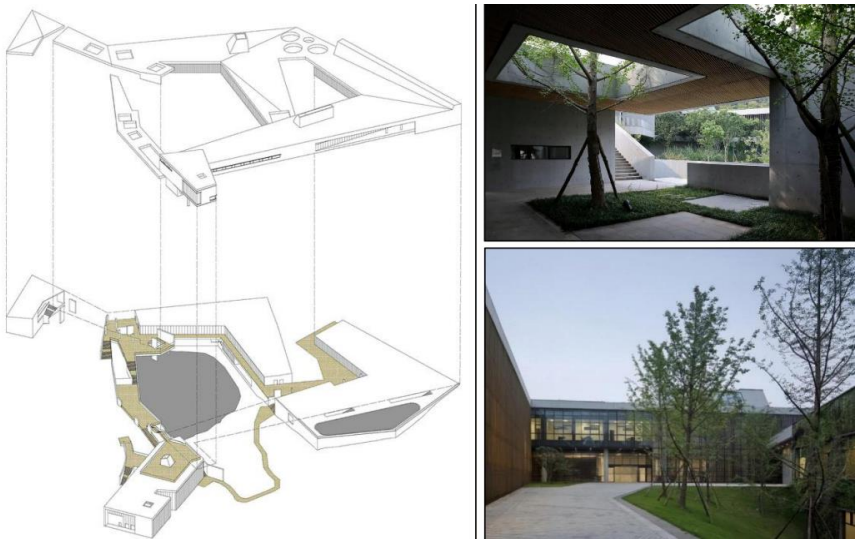


Figure 3.2 p The Qilou Concept Adopted in The Chongqing Community Center

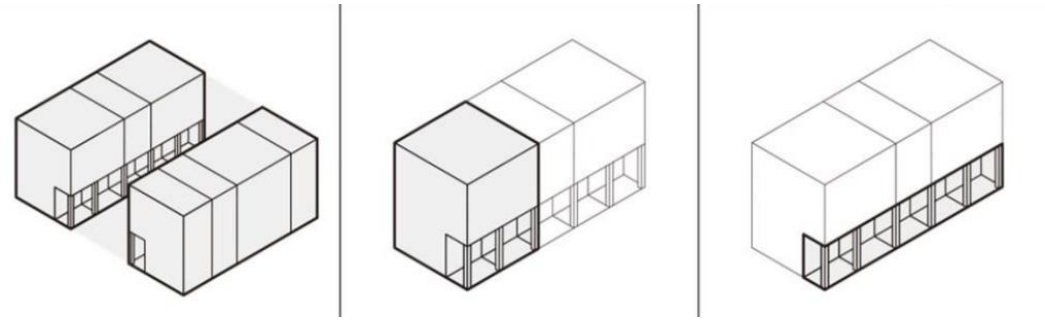


Figure 3.2 q The quilou concept

In traditional Chongqing architecture, Qilou (Veranda House) is a common strategy because of the rainy weather. Such space type is adopted into the outdoor circulation system of the community center. As a result, multiple paths connect two courtyards and perimeter of the building. They relate the inside and outside of architecture closely in both visual association and physical connection by large openings and spans.

The publicity of the community center brings various types of people including regular citizens, residents of neighborhood, and the users and staff of the community center. The design therefore considers their stay, penetration, and interaction. They have different behavioral patterns in the building, such as strolling, gathering, performing, reading, tutoring, training, exercising, health consulting, etc. People have designated space for such behaviors, while can also be able to actively interact with each other in an open and fluid space. Hoping that the community center can amplify its spirit, therefore it becomes a node to intrigue and generate public energy of urban life in the city.

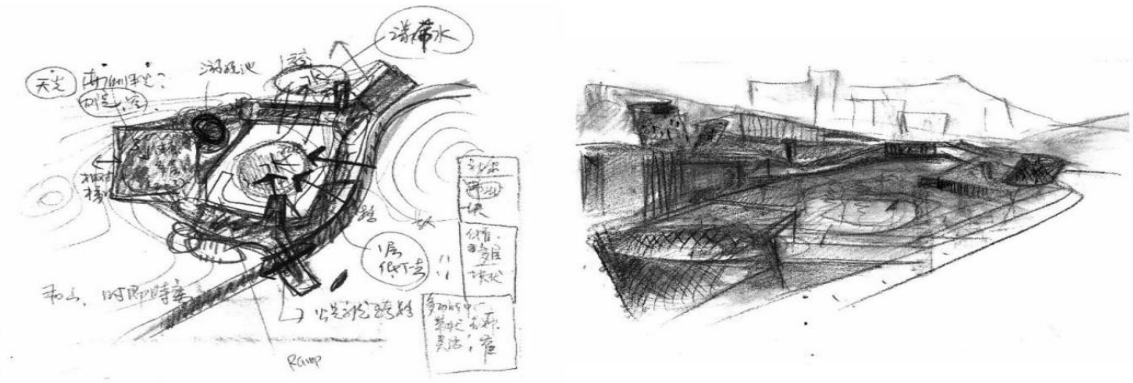


Figure 3.2 r Qilou conceptual drawing

The three major buildings have their own atrium where large skylight introduces natural light into the deep space. Openings, windows, cantilevers and corridors blur the boundary between the interior and exterior of architecture. Thus, merging the whole space together with the sky, mountain, trees, sunlight and breeze can eventually create a lively co-existing relationship of artificial structure and natural landscape.

Figure 3.2 s Green roof structure

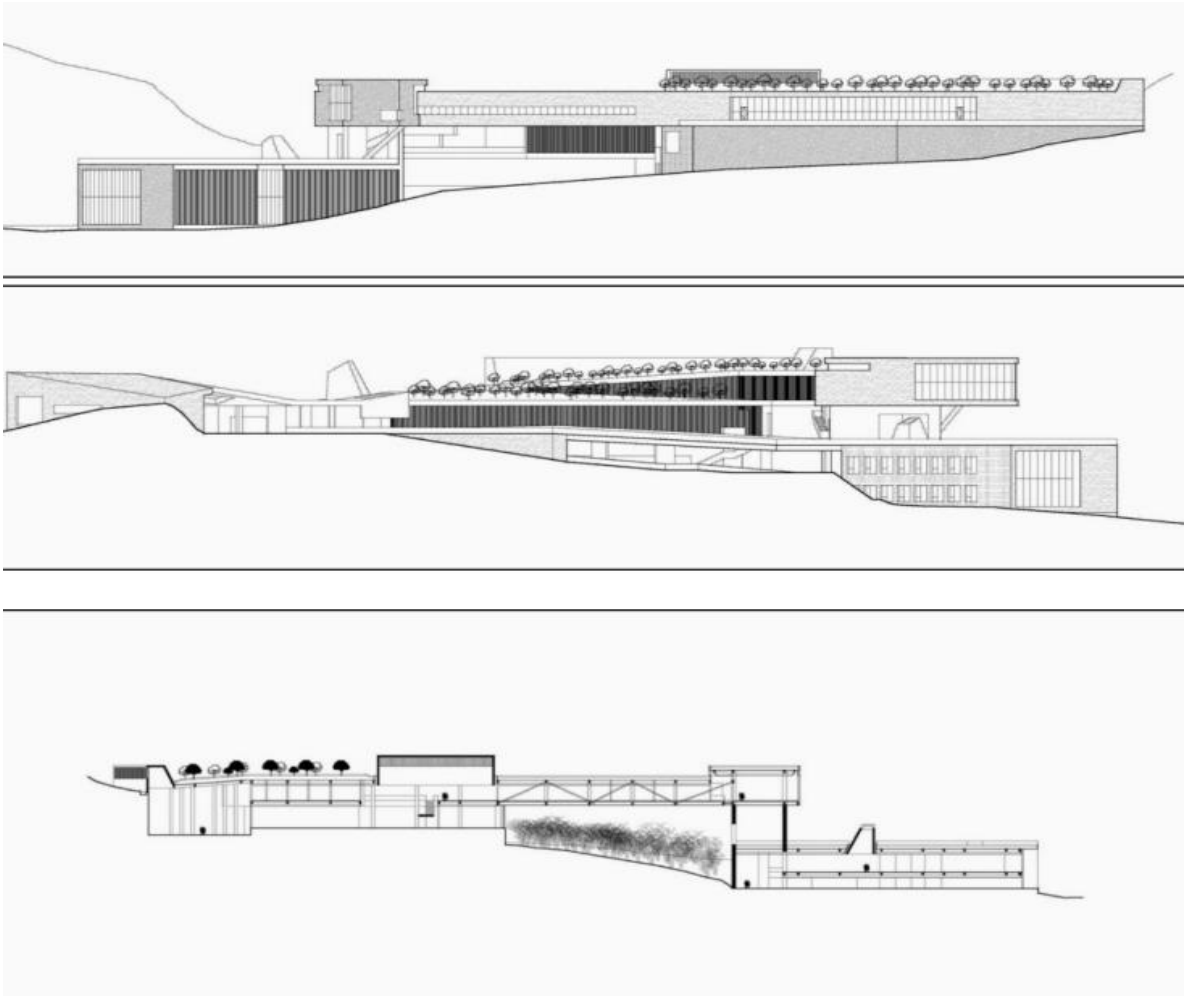


Figure 3.2 t Sectional Elevations

SUSTAINABLE DESIGN APPROACH

Building energy consumption in China has increased by 40 per cent since1990andaccounts for about 30 per cent of total final energy consumption. The best part of the Chongqing Taoyuanju Community Center is the green roofs. The materials used in this building are concrete, timber and steel. This is blanketed with plants, from vine-covered walls to the undulating green roof that mimics the shape of the surrounding hillside. The design includes a

Figure 3.2 u The Undulating Green Roofs of Building

rainwater collection and reuse system, passive ventilation, permeable pavement, and locally sourced materials.The tops of the buildings have plants growing out of them and the design includes passive cooling and heating, a plan that encourages biking and walking, and measures to reduce the overall consumption of resources and energy by 22 per cent.

Vector Architects designed a huge grassy roof canopy and plant-covered walls for this community center in southwest China, helping it to blend in with its mountain landscape. The sprawling green roof connects the concrete and steel structures, which have a combined area of 10,000 square meters. The roof slopes up and down in response to the hilly site, spanning height differences across the site to unify the independent buildings.

Figure 3.2 v The use of concrete and timber on the exterior facades

Planting around the base of the structures and on their walls help to further embed the community center into its rural setting.

The starting point was attempting to merge the new building outline with the existing wavy topography. Instead of building an object in the field, we hoped to create an image of fusing architectural form and hilly landscape together. Green roof and green walls assist to blend the volume into its natural environment, and enhance the thermal co-efficiency of building envelope. The architects considered the behavioral patterns of the wide spectrum of people the community center would be used by, and responded by designing spaces for strolling, performing, education, exercise and healthcare within the complex.

Figure 3.2 w The common courtyard space between the building blocks

The roof spans gaps between the buildings, creating covered walkways between different parts of the site and linking with a pair of courtyards, as well as an outdoor pool. Trees protrude through rectangular and circular openings in the grassy canopy, while angular skylights project above the roofline, helping light to filter into the interiors.

Figure 3.2 x Exterior of center

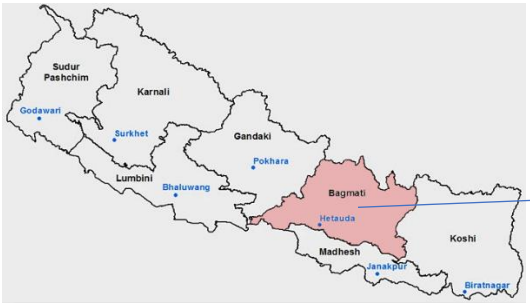
According to the architects, this feature takes its cues from Qilou – a traditional form of housing that is fronted by an arcade.

4.SITE STUDY AND ANALYSIS

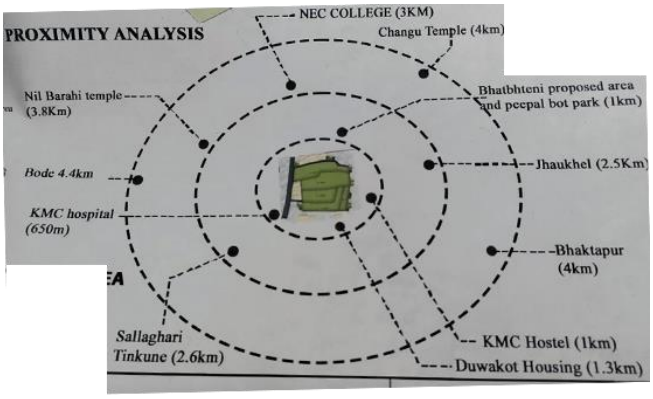
4.1. SITE INFORMATION

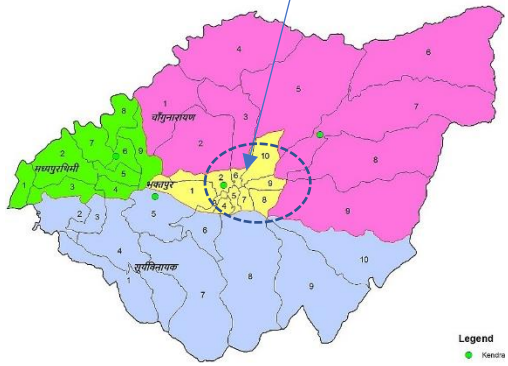
4.1.1LOCATION

- Location Duwakot is a settlement and former VDC
- Municipality: Changunarayan Ward 2 District: Bhaktapur
- GPS cordinate: 27°41'19"N85°24'49"E
- It is about 20Km away from KTM. It is located on the north of the valley Geography: Terrain, Slope land



4.1.2NEAR BY PLACES





TARGET AREA:

- Jhaukhel
- Bode
- Sallaghari

In Duwakot, one can find colleges,Hospital, commercial areas, temples, and residential zones, including the Duwakot housing area within a 1.3 km radius This proximity provides residents with convenient access to proposed community center.

4.1.3 INTRODUCTION

Duwakot, located in Changunarayan Municipality, has experienced significant population growth in recent decades. This increase reflects its status as one of the rapidly expanding settlement areas, largely driven by migration, especially after the earthquake. The influx of people has been fueled by the need for safer and more stable living conditions, leading to rapid urbanization and development in the area.Total tole 20-22 According to the data census Nepal

At the time of the 1991 Nepal census, it has a population of 5,157 with 905 houses in it.

According to 2021 census it had a population of 18,106, 9065(M),9041(F) with 4145 houses in it.

Average household:4.37

In 10 years the population increases 3.8 times.

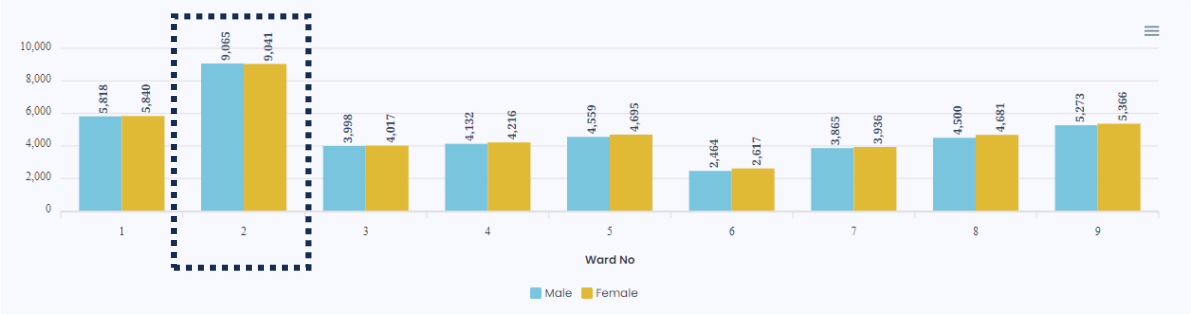


figure 4.1 a Population of changu municipality

Percentage Distribution of Households by Occupational Status

Data of 2021

- Agriculture:44%
- Business:27%
- Carpenter:2%
- Pension:5%
- Services:18%
- Others:4%

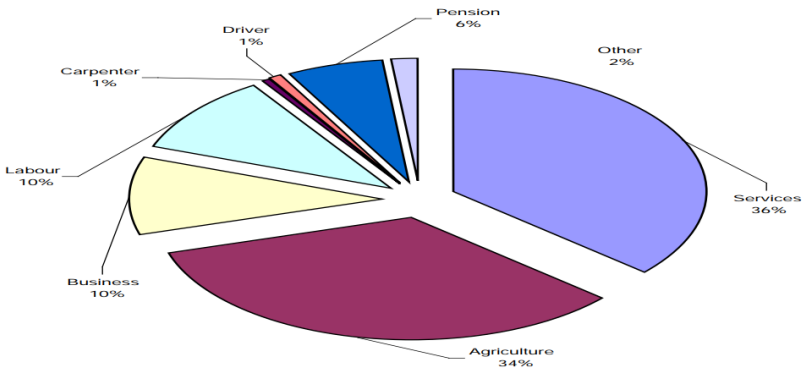
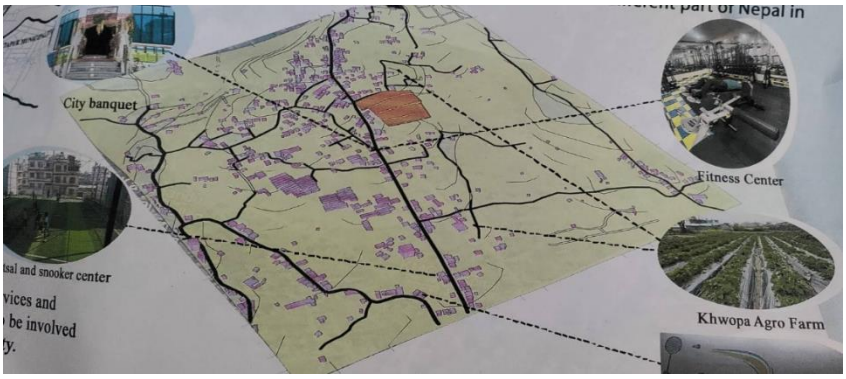


figure 4.1 b Occupational status of 2006

Source: Field survey of 2006

SPECIALTY

- Mixed caste population
- Temples:
  - Tripurasundari
  - Bhaidhoka
  - Bhairav



- Promotes Agriculture
- Animal husbandry
- Terrace farming
- Tomato farming

FUTURE PLAN

- According to chief of ward 2 Duwakot: Mr. Som Prasad Pradhan Multipurpose Hall (80 ropani) includes wards office, parks for children, health post, clinics and elderly club with recreation and wellness centers

TARGET GROUP

Group of a community living in that area including child, youth and elders

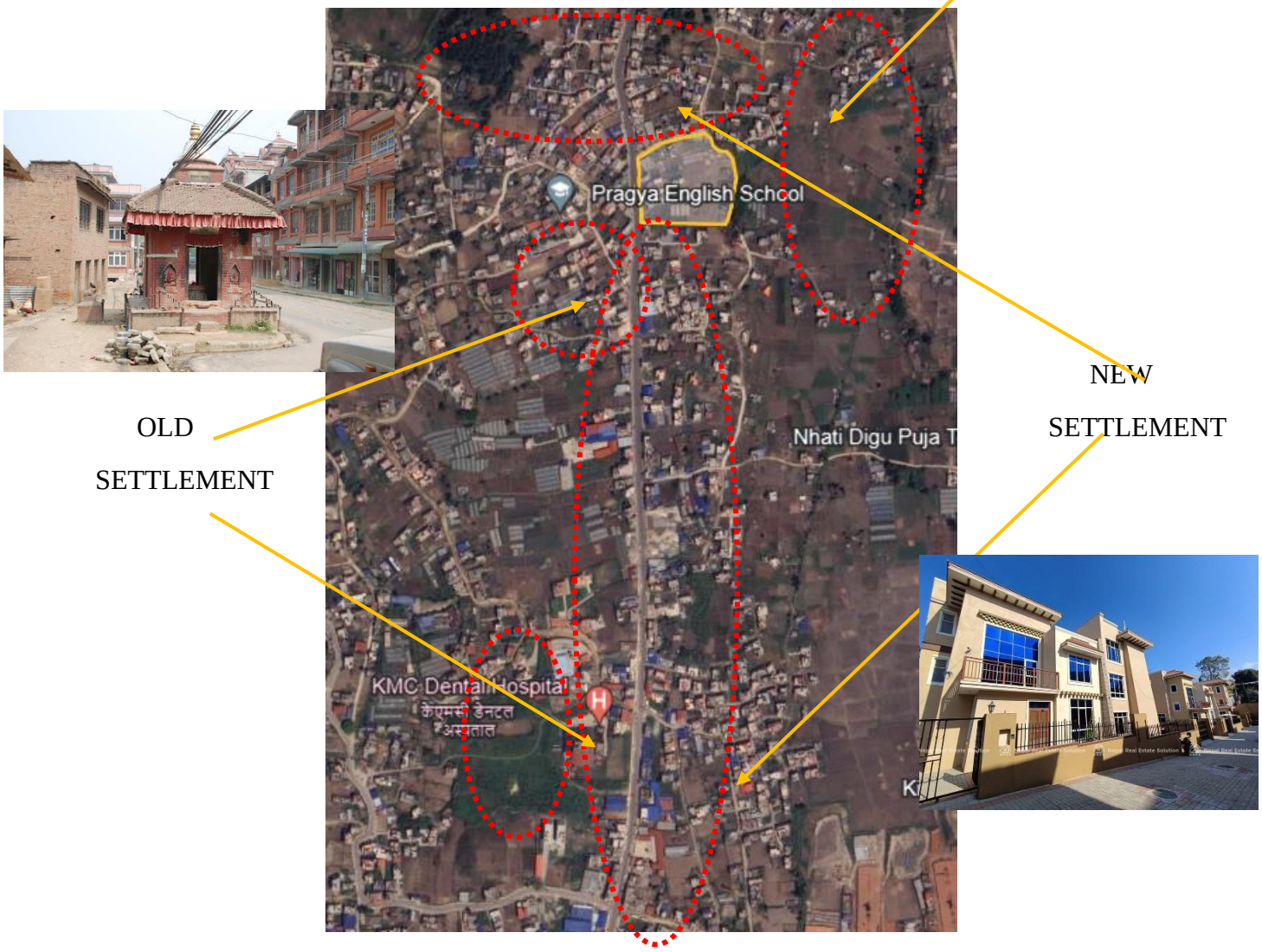


figure 4.1 c settlement area

The old settlement in Duwakot is characterized by traditional Newari houses arranged in row housing, with several temples interspersed throughout the area. In contrast, the new settlement features primarily detached housing, reflecting a shift in architectural style and urban planning to accommodate the growing population and changing lifestyle preferences.

EVENTS

- Recreational Gym and fitness club Morning (6-12) Evening (3-7)
- Women Dance center
- Different organization Badminton club Football club Basketball club

EVENTS

- Jestha Nagarik chowk where events like Bhajan, kritan, Pooja and feast takes place for elderly people
- Yoga Samiti
- Mangal samiti
- Pathivara Yog Sadhan
- Nagisthan Yog Sadhan
- Harihar Yog Sadhan

MAIN NEEDS Of COMMUNITY

- Health services/education
- Recreational center
- Proper community management
- Proper food stalls/groceries shops
- Employment opportunity
- Multipurpose hall
- Library
- Preschool
- Parks
- Elder club

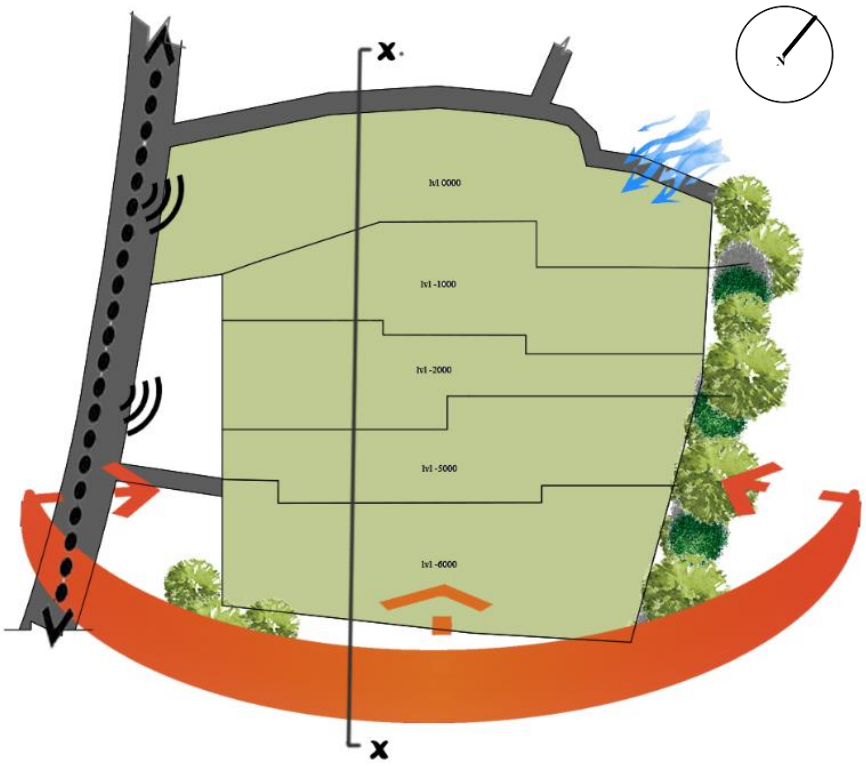
4.1.4 SITE ANALYSIS

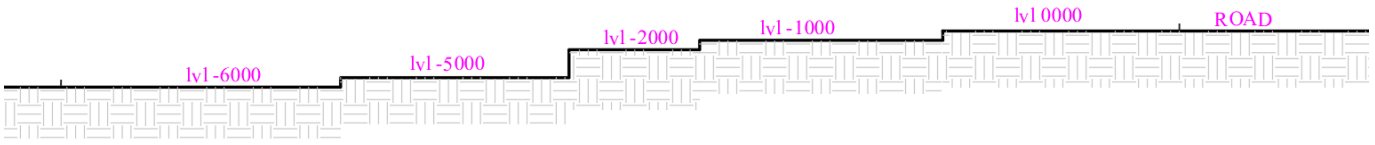
AREA: 11583.83 Sqm (22 Ropani 12 Anna)

NEARLY: Bus stop (7min,500m)

ACCESSIBILITY: Lies in 20Km away from Lalitpur Lies in 12.1Km away from Lalitpur LIes in 4.6Km away from Central Bhaktapur

CONTEXT: It is 2.7Km North form Araniko highway

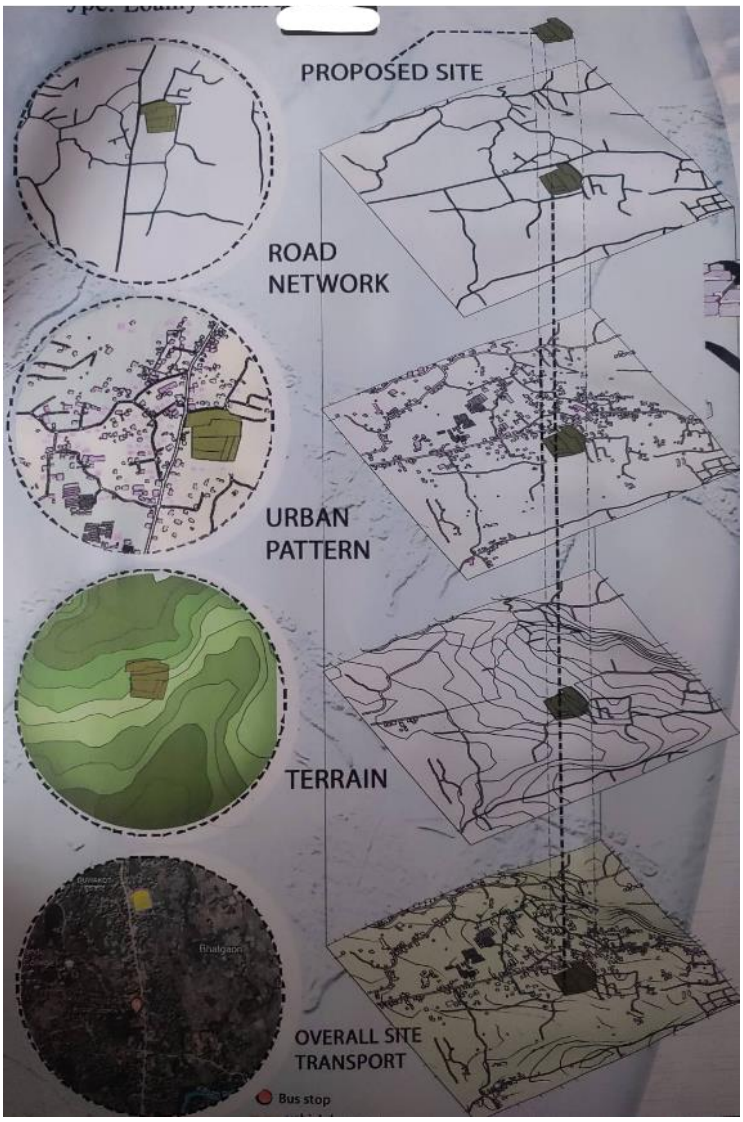




SECTION AT X-X

BYLAWS:

- SETBACK: 1.5m-3m ROW: 7m (main road) 4m (4m road+Intersection)
- FAR: 1.75
- GCR: 60%
- Parking: 10% of site area



PHYSICAL ASPECTS

- Topography: South facing Contour(2m)
- Current use: Farmland
- Ownership: Private
- Soil type: Loamy textured soil
- Orientation: North-South
- Climate: Subtropical climate

INFRASTRUCTTURE AND SERVICES

- ELECTRICITY AND TELEPHONE: From the nearest pole
- DRINKING WATER SUPPLY: Public tap, wells and household bore water
- DRAINAGE AND SEWARAGE: combined to sewer system
- SEPTIC TANK SYSTEM Individual underground system
- TRANSPORT Bus stop is 200m from site

ECONOMIC ASPECTS

- Higher, Middle or lower middle economic group
- Economic activities: agriculture, business, offices, shops,etc

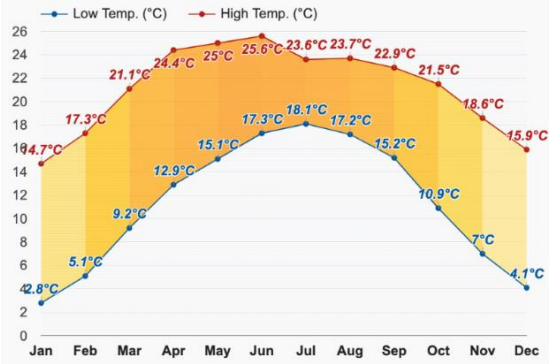
SOCIO-CULTURAL ASPECTS INHABITANTS:

Chhetri, Brahmin, Newari, Gurung, Rai, Limbu

- OLD SETTLEMENT: Newari Traditional Building (Brick Facade)
- NEW SETTLEMENT: Modern Detached Building

CLIMATE

- Hottest month is July(18.1°C)
- The coldest month is January(2.8°C)
- Highest relative humidity are July and August (87%)
- Lowest relative humidity in March (40%)
- The windiest month is April (8Km/h) The calmest moth is August(4.9Km/h)



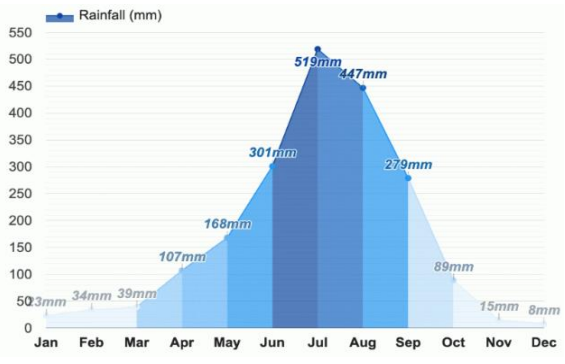


figure 4.1 d Climatic data

4.1.5 SWOT ANALYSIS

STRENGTH

Inside of the Residential area Transportation and road networks, Contour land with beautiful views, good infrastructures i.e Communication water supply, Close proximity to nature strong connection with the environment and convenient access to city core area.

WEAKNESS

Sloping or uneven terrain pose challenges for construction and accessibility

OPPORTUNITY

Resiential area -Offers roo for future growth and development, providing flexibility. Employment- Economy Development Can be developed as a focal point of a community

THREATS

Introducing a community center could potentially increase noise levels and traffic in the residential area, which may cause inconvenience or discomfort to nearby residents.

figure 4.1 e Some Images of site

5.PROGRAM FORMULATION

Table 6 Program Formulation

S.N	Spaces	Sub categories	No.	Area	Total Area	Users
1	Café and restaurant					
		Reception	2	20	40	2
		Kitchen	1	120	120	12
		Storage	1	28	28	
		Lounge	1	40	40	26
		Dinning area	2	340	680	75
		Restroom	2	45	90	10
		BAR	1	30	30	10
		Outdoor		138	138	15
				761	1130	150

S.N	Spaces	Sub categories	No.	Area	Total Area	Users
2	Farmers market					
		Retail	12	6	72	24
		Storage	1	20	20	
		Loading dock	2	36	72	
		Outdoor area	1	80	80	16
				142	244	40

S.N	Spaces	Sub categories	No.	Area	Total Area	Users
3	Banquet					
		Main hall (seating +stage)	2	245	490	250
		Dressing room	2	15	30	6
		Catering	2	78	156	16
		Restroom	4	18	72	10
		changing	1	18	10	
		Storage	1	15	15	
					775	282

S.N	Spaces	Sub categories	No.	Area	Total Area	Users
4	Community library					
		Reception	1	6	6	2
		Reading	1	92	92	18
		Stacks (300 books)	1	80	80	
		Outdoor	1	42	42	10
		Restroom	2	15	30	4
				235	250	32

S.N	Spaces	Sub categories	No.	Area	Total Area	Users
5	Admin block					
		Reception	1	6	6	1
		Office space	1	36	36	8
		Meeting room	1	30	30	9
		Storage room	1	9	9	
		Restroom	2	15	30	6
		Differently able T/B	1	8	8	1
		Pantry	1	20	20	2
		Lobby	1	36	`36	10
		Record and filling area	1	12	12	3
		Waiting room	1	25	25	2
		Maintenance room	1	8	8	1
				135	250	31

S.N	Spaces	Sub categories	No.	Area	Total Area	Users
6	Guard house					
		Kitchen and dinning	1	9	9	10
		Bedroom	1	17	17	
		Tiolet	1	4	4	
				30	30	1

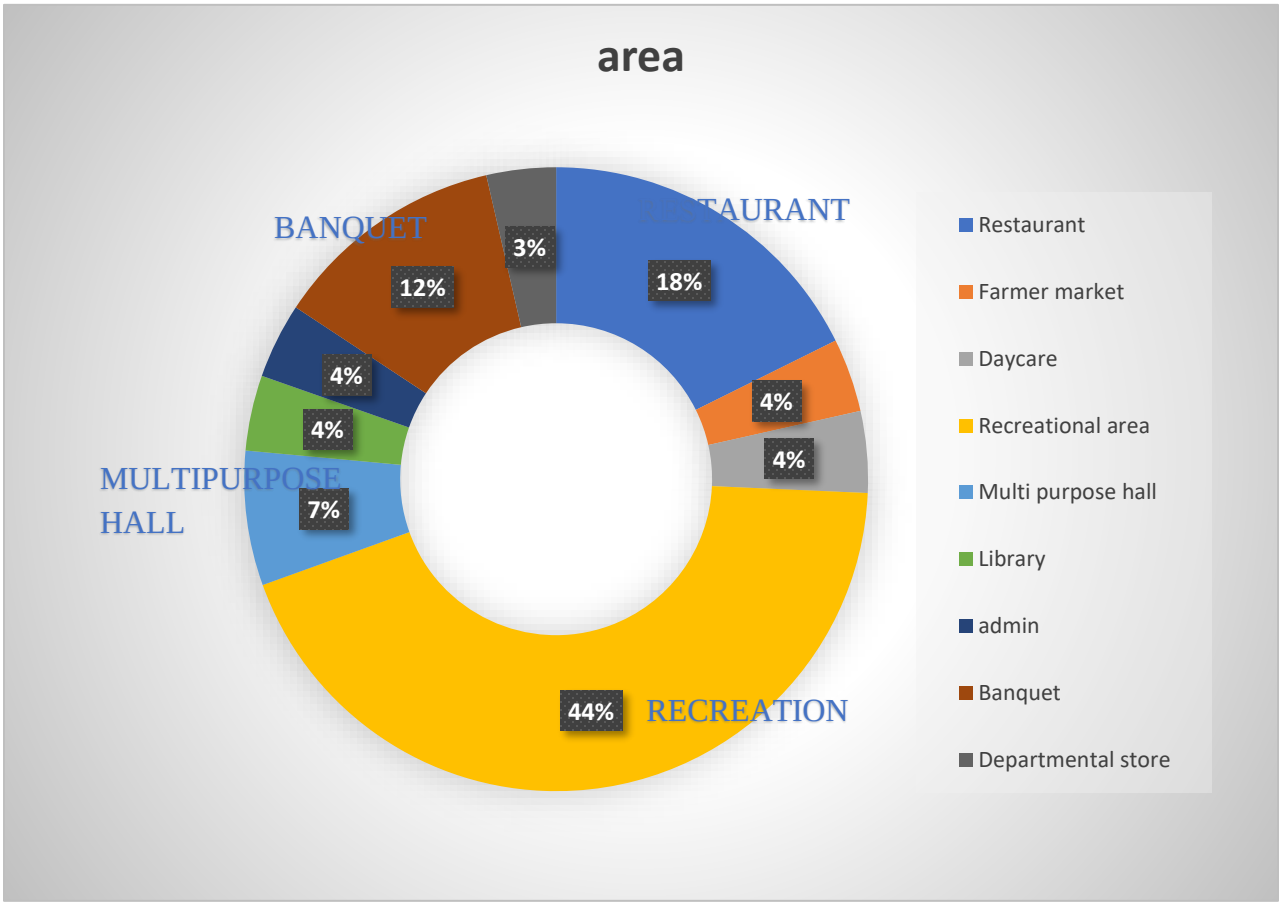
S.N	Spaces	Sub categories	No.	Area	Total Area	Users
7	Day care					
		Sleeping room	1	36	36	
		classroom	1	80	80	12
				270	270	18

S.N	Spaces	Sub categories	No.	Area	Total Area	Users
8	Multi-purpose hall					
		main hall	1	330	330	180
		Waiting area	2	2	12	
		rehearsal room	1	20	20	2
		toilet	3	18	54	3
		changing room	2	15	30	
					446	185

S.N	Spaces	Sub categories	No.	Area	Total Area	Users
9	Recreational area					
		Yoga class	1	60	60	15
		Gym	1	102	102	30
		spa sauna	1	238	238	30
		swimming area	2	586	586	16
		Dance and music room	1	90	90	20
		wall climbing	1	210	210	20
		Reception +lobby	1	70	70	14
		control room	1	25	25	5
		store room	1	25	25	
		changing room	2	25	50	12
		lobby	2	60	120	
		Locker	4	15	60	
	outdoor	football	1	935	935	30
		badminton	2	115	230	12
				2556	2801	150

S.N	Spaces	Sub categories	No.	Area	Total Area	Users
10	Departmental store					
		main store	1	144	144	40
		store room	1	20	20	10
		TOILET	2	16	32	4
				230)	230	

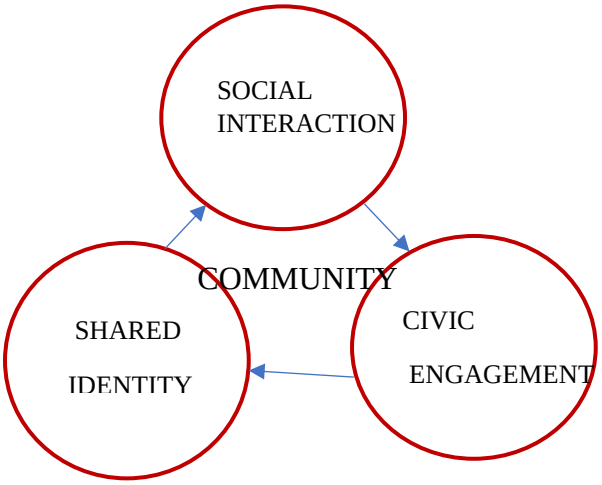
PERCENTAGE DISTRIBUTION



6.CONCEPT

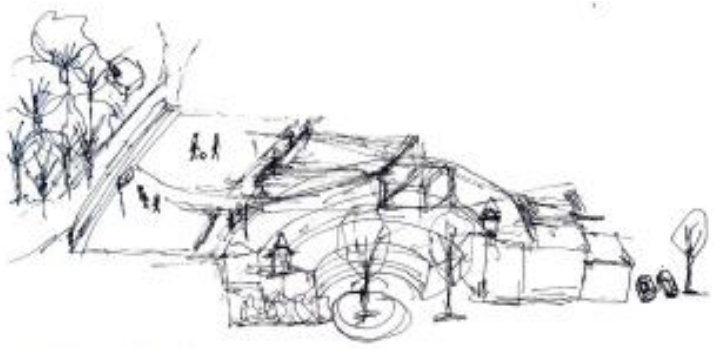
As an architectural student, I propose a design concept for a community center that focuses on fostering social interaction, shared identity, and civic engagement. These elements are crucial for forming a strong community. By incorporating spaces that encourage these activities, the community center will provide a unifying environment for all member

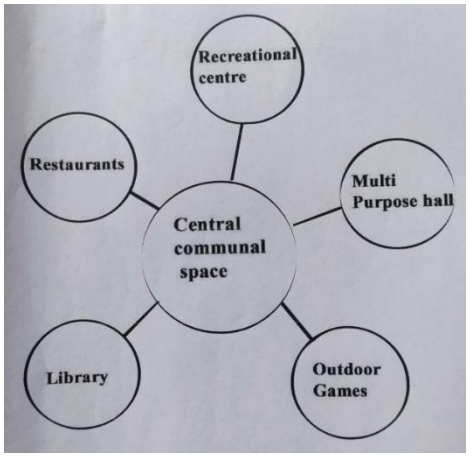
The main problems are individualism, social disintegration, lack of public spaces, and isolation. To address these, the community center design should promote social integration through socialization, recreation, and learning. By creating spaces that encourage these activities, the center will help build a cohesive and engaged community.



To address these issues, I have designed an open central space surrounded by various amenities. This layout promotes social integration, vibrant and cohesive community environment.

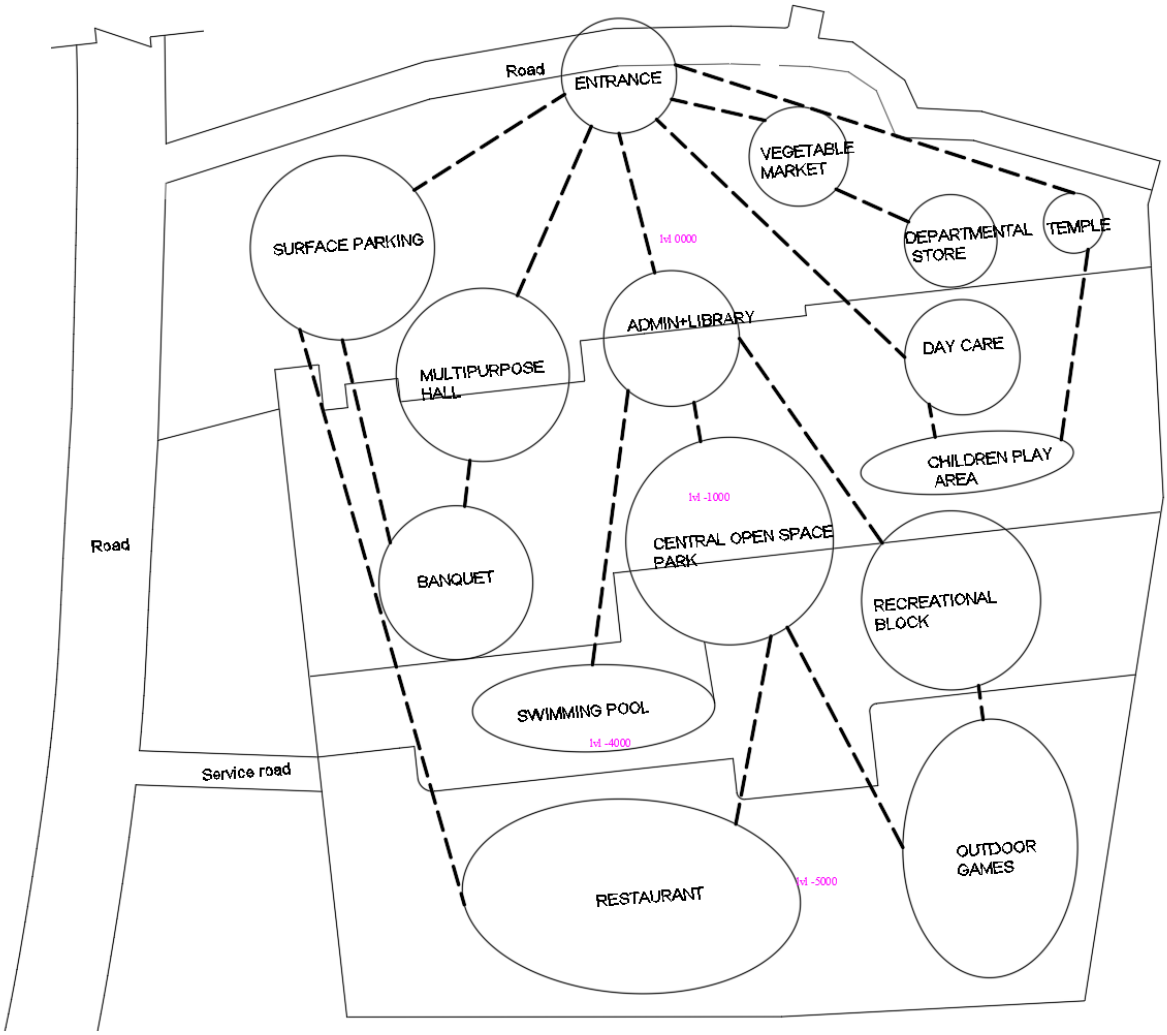
Conversing Points and Breakout Spaces: Designated areas where community members can naturally gather and engage in conversations, fostering social interaction and community bonding.





Breakout Spaces Smaller, spaces scattered throughout the center where individuals or small groups can interact, collaborate, or relax, providing opportunities for deeper connections and diverse social experiences

ZONING



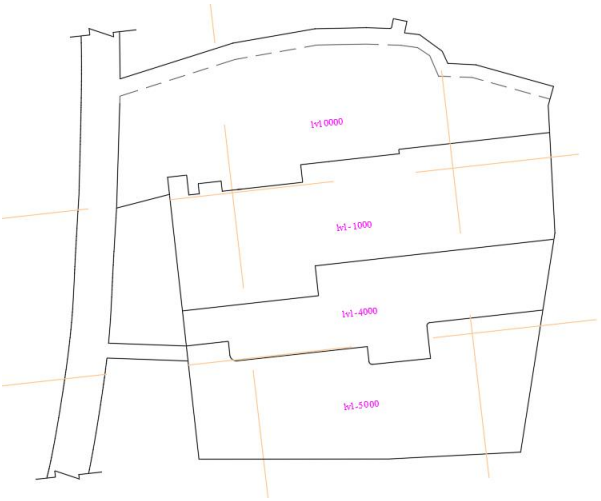
- The zoning plan places the admin office facing the entrance for direct information access. The multi-purpose hall is located on the west side for convenient vehicle parking and access.

- A temple with patis (traditional resting places) is situated in the northeast for daily chants. The farmer's market is positioned at the east near the entrance for easy in-and-out services.
- The central area is designated as a park, while the restaurant and recreational space are in the south.
- Circulation and cycling track routes are along the site's edges.

DESIGN

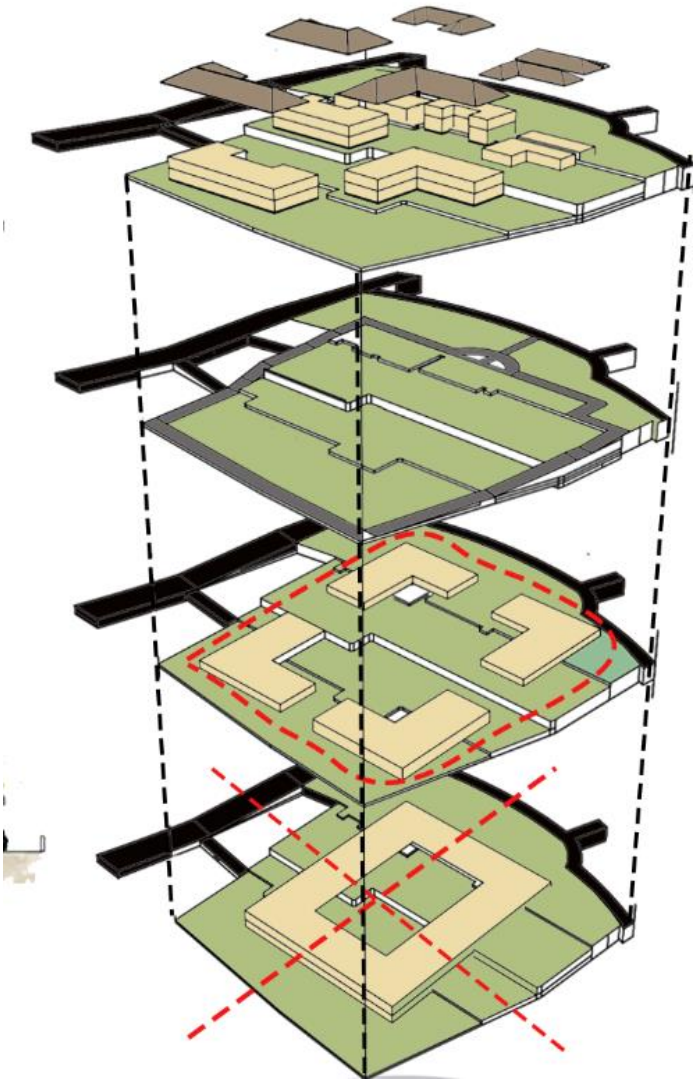
References Through Existing Contour:

The design takes inspiration from the existing contours and site of the land, seamlessly blending the structure with the natural environment. This approach not only preserves the site's natural beauty but also enhances the aesthetic and environmental value of the community center.



Terraced Layouts Utilizing the natural slopes and elevations to create terraced seating, walkways, and gardens, making the space more dynamic and engaging.

Aligning the building with the natural contours of the land allows for a harmonious integration of the community center into its surroundings, minimizing environmental impact and enhancing the overall aesthetic appeal. By following the existing topography, the design preserves the integrity of the landscape while maximizing the functionality of the space.



Ample central spaces are strategically incorporated to serve as focal points for interaction and community activities.

Positioning the buildings L-shape strategically ensures that each structure receives ample natural light and ventilation and privacy enhancing the comfort and well-being of its occupants.

Moreover, creating visual linkages between the buildings and the gathering spaces enhances the public character of the community center and encourages more people to participate in various activities.

Additionally, incorporating features like outdoor seating areas, landscaped gardens, further enriches the visual experience and creates inviting spaces for community engagement.

The roof design blends contemporary modern and traditional architectural elements to create a space that resonates with the community's aesthetic values

This fusion creates a harmonious environment that respects tradition while embracing modernity, making the space feel both familiar and forward-looking.

The roof acts as a unifying feature, enhancing the overall visual appeal and providing a comfortable, shaded space that aligns with the community's identity and lifestyle.

Other plans are in Annex

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COMMUNITY CENTER AT DUWAKOT

COMMUNITY

A community is a social group of individuals who interact with one another and share common interests, characteristics, or geographical locations.

COMMUNITY CENTRE

Community center is a facility designed to provide various social activities and recreational for the local community.
These centers play a vital role in fostering community engagement, promoting wellness, and offering a space for people to come together for various purposes.

It focuses on mainly 4 aspects
-Educational Hub: youth character/ leadership development, youth academic enrichment. high school dropout prevention, or youth nutrition / life skills.
-Comprehensive Health and Wellness Hub
-Recreation, sports leagues, fitness
-Multi functional community Hub, Market square

History of community/ communal space

Though specific community centers were not mentioned to earliest day but they existed among human communities from the earliest of civilization such as:
Greek civilization: Agora
Roman civilization: Roman Forum
Mohenjo Daro civilization: Citadel

In context of Nepal

-The traditional settlements of the Kathmandu Valley were mostly built during the Malla period by the Newars on the higher grounds and characterized by the narrow streets and the open spaces.
-Though the traditional settlement in Kathmandu Valley were compact there were plenty of public spaces where people met, markets were held, agricultural product were thrashed and dried, and various festivities were carried out.

PRESENT SCENARIO

-Modern life is very busy.
-Many people feel isolated in their own homes, this has led to reduced sense of community.
-Activities and events at the center give people a chance to get out, have regular contact with other people and create new friendships
-The scarcity of community centers, often limited to single buildings without accompanying amenities.

Child

Youth

Elders

PERCEPTION TOWARDS COMMUNITY CENTER

-Child's perception: place to play, to learn, to socialize, to be creative
-Youth perception: place to socialize, to learn, to stay active.
-Differently able perception: place to find accessible facilities welcoming space specialized programs and services (unique challenge and interest)

NEED AND IMPORTANCE

1. Supporting personal development
2. Creating a sense of place
3. Providing a central gathering place
4. Promoting physical health
5. Fostering cultural exchange

JUSTIFICATION

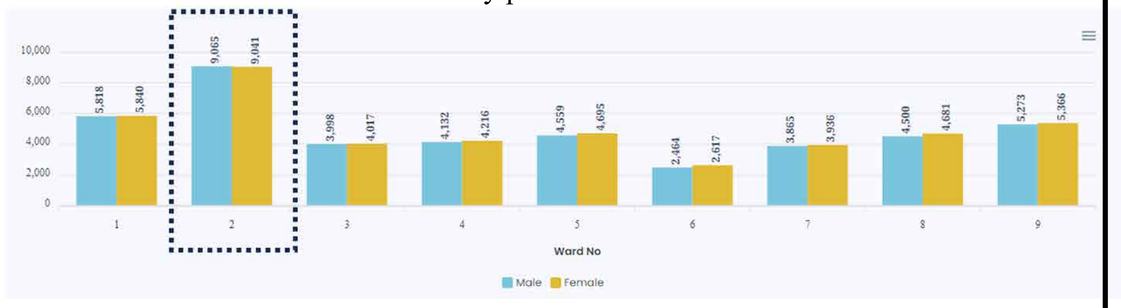
Rapid Population Growth: Duwakot's population has surged from 5,157 in 1991 to 18,106 in 2021, increasing the need for community infrastructure.

Isolation Due to Modern Lifestyles:The area's residents, facing increased busyness and detachment, lack spaces for social connection.

- Diverse Population:Communities like Chhetri, Magar, Brahmin, Newar, Khatri, and Nepali reside in Duwakot, emphasizing the need for a common space.

-Scarcity of Essential Facilities:There is a shortage of recreational centers, stores, and restaurants, underscoring the demand for a community hub.

Strategic Location:The proposed center in Changunarayan Municipality will serve as a central hub for engagement and essential services.yargeting nearby places as well.



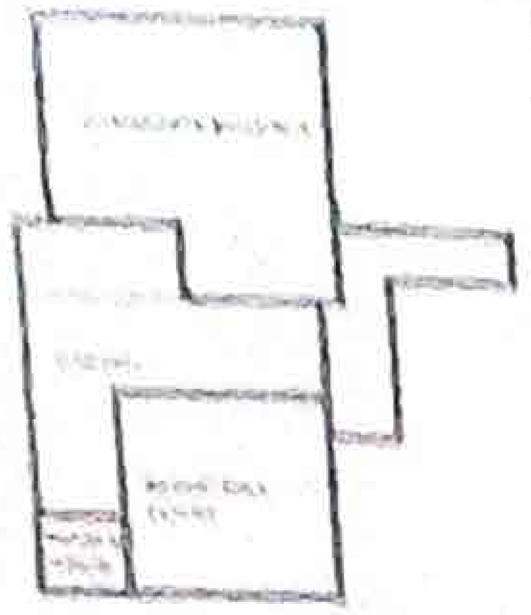
OBJECTIVES

To create a space that fosters community, promoting and facilitating inclusive activities that support the employment, welfare, health, social, and recreational needs of the local population.

COMMUNITY CENTE
AT DUWAKOT

[illegible] COMMUNITY CEN

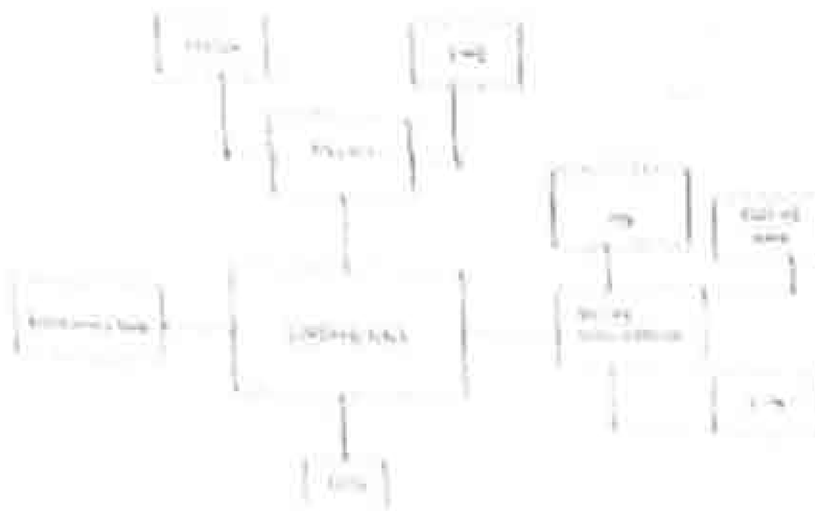
[illegible] Basundhara, Kathmandu
[illegible] metropality
[illegible] no. 3
[illegible] Basundhara, Tokha municipality
[illegible]
Building type: Communal



Inference
- Ground floor is used for shops which are provided in rent and the [illegible] amount is used for maintenance of community building.
- [illegible] floor is used by Municipality office of ward no. 3 as it was [illegible] communal or governmental building.
- 2nd floor is used as multi purpose hall for various communal functions and municipality meeting and activities.
- Community building could be used for economy generation as well and can be designed in self sustaining way.
- Community's feeling of ownership might loose with government ownership so, proper care should be taken for distribution of ownership.

SPORTS HALL: ARMY PHYSICAL AND SPORTS CENTRE

Location: Lagankhel, Kathmandu
Owner: Nepal Army
Area: 4 Ropani- 14 Anna - 2 Paisa 2 Daam (2499 m2)
Floor Height: 10 m.
Capacity: 1000
Structural System: Space Grid Roof Truss
Flooring: Wooden Planks
2Entry and 4 Exits (4'-6")



A covered hall, multipurpose hall, medical room, sanitary facilities, barracks, parking, stores, dining areas, water supply system etc. are allocated atthe most feasible distances from main entrance to the complex.
GYM
Width :13'-0"
Length :32'-1"
Height :8'-0"
One machine occupies :15' 4"X 9'-10"
The covered hall occupies a total area of 2499m2 (arena)
Height = 10 m

MADAN PURASKAR PUSTAKALAYA

Location : Patan Dhoka,Patan
Site area : 250.83 SQ M
Architect : ABARI
Built in : 2015

PROGRAMS

S.N.	SPACES	AREA
1.	RECEPTION	140 SQ FT
2.	TOILET	42 SQ FT
3.	DIGITAL RECORD CONSERVATION AREA	150 SQ FT
4.	DIRECTORS OFFICE	130 SQ FT
5.	ARCHIVE	900 SQ FT
6.	MEZZANINE FLOOR	595 SQ FT

Book shelf area
Bookshelves Dimension : 7' X 2'
Aisles Width : 2'6"
INFERENCE
Ratio Of Group Study Area Is Very Few With Respect To Individual Study Area.
Neither Any Provision Is Done For Group Study Room Nor Seminar Group Study Area Provided At The Upper Floor

GOKARNA FOREST RESORT

Location : Gokarna, Kathmandu
Total land area : Approx. 470acres
Structural System : RCC

FACILITIES AND SERVICES
Indoor swimming pool
Child swimming pool
Seating area
Massage room for both male female
Spa and sauna
Gym
Saloon

INFERENCES
Well planned and organised space with smooth flow of movement.
- Segregation of wet and dry space.
- Sufficient amount of daylight through full height windows and doors.

Indoor swimming pool
Dimension 18'-0" X 44'-0"
Circulation passage of 6'-0" segregating dry and wet spaces
Changing room : 10'-0" X 10'-0"
Shower cabinet : 4'-0"X3'-6"
Restroom : 3'-0" X 3'-6"

INTERNATIONAL CASE-STUDY

FIRSTENBURG COMMUNITY CENTRE

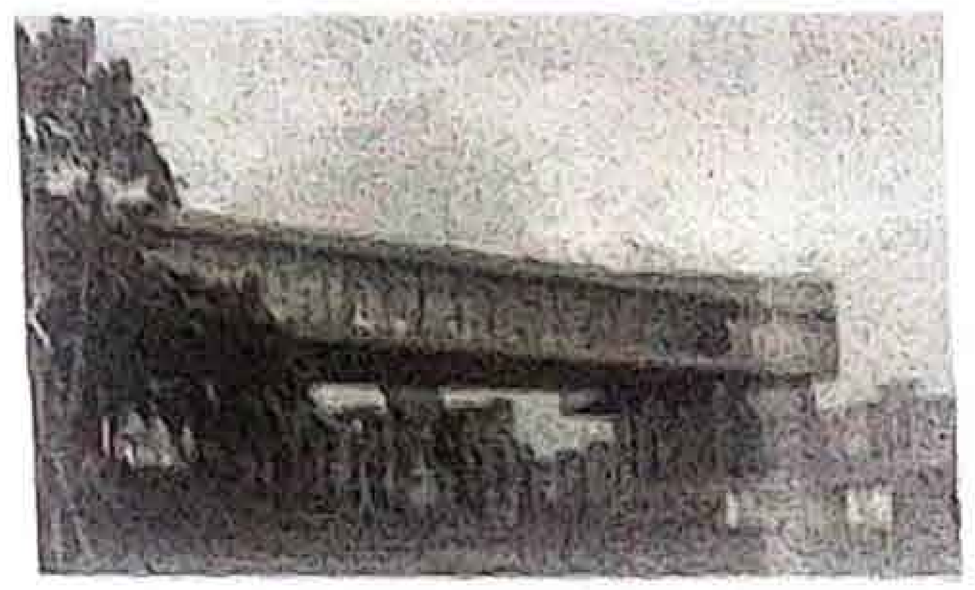
Project Summary
- Location: Vancouver, Washington
- Gross SF: 80,982 square feet
- Building Footprint: 64,093 square feet
- Cost: $17M
- Completed: 2007

Program
1 Community Room
2 Game Room
3 Juice Bar
4 Pool
5 Locker Room
6 Rock Climbing
7 Gym
8 Administration
9 Mechanical
10 Track
11 Fitness
12 Multi-purpose

INFERENCE
- The recreation program includes swim and warm water leisure therapy pools, a two court gymnasium, fitness room, aerobics dance studios, and multi purpose activity spaces.
- The community spaces incorporate childcare, a teen lounge and game room, a senior lounge and meeting rooms.
- The multi-use community rooms, together seating up to 350 citizens, address the lack of meeting and gathering spaces.
- provide a venue for city council meetings, social dances, performances, neighborhood fairs and community forums.
- Bamboo for exterior wall paneling, flooring exposed steel structure, ground face concrete masonry block walls, and concrete floors are used to eliminate unnecessary material

CHONGQUING TAOYUANJU COMMUNITY CENTER

Location : Chongquing, China
Area: 10000 m²
Year: 2015
Architects: Vector Architects
Architect In Charge : Gong Dong
Structural Consultant : Congzhen Xiao
AREA 10000s qm

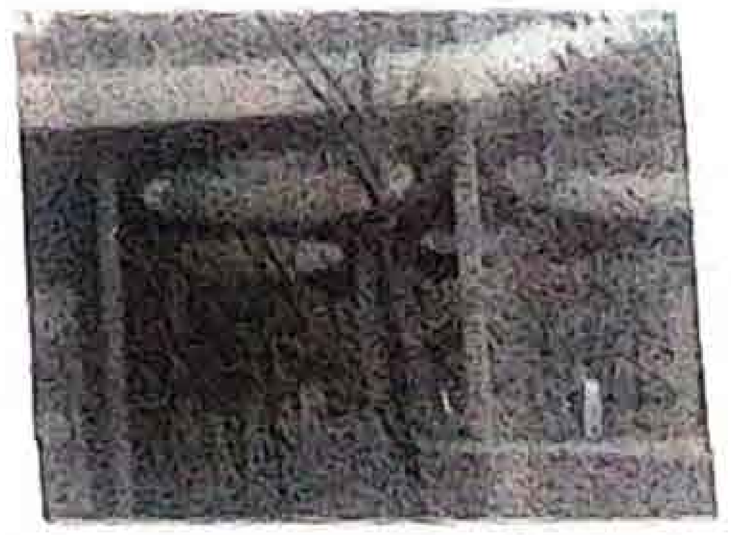


PROGRAMS
1 Playground
2 children medical centre
3 examination room
4 waiting room
5 operating rooms, meeting room
7 lobby
8 reading room
9 Backstore
10 meeting room
11 classroom

PROGRAMS
1 Outdoor terrace
2 Entrance hall
3 Lobby
4 Resting area
5Infusion area
6. Laboratory
7 classroom
8 Dance room
9 Music room
10 Gym
11 Multifunctional room
12 dressing room
13 Badminton court
14 Restaurant

PROGRAMS
1 Resting area
2 Chess room
3 Aerobic area
4 Gym
5Spriling room
6 Yoga room
7 Outdoor swimming pool

PROGRAMS
1 Cultural centre
2 Sports Centre
3 Community health centre
4 Restaurant
5Outdoor swimming pool
6 Green area



INFERENCE
- The relationship of in and out of architecture spaces is an important aspect of this design as well
- Comprising three separate volumes that each house a different function, the center serves as a cultural, sports and health hub for the local community
- A continuous roof connects the three independent buildings into one unified volume
- It slopes up and down responding to the hilly site.
- At the same time, it frames out two courtyards: a sloped garden, and a green plaza where community activities take place.

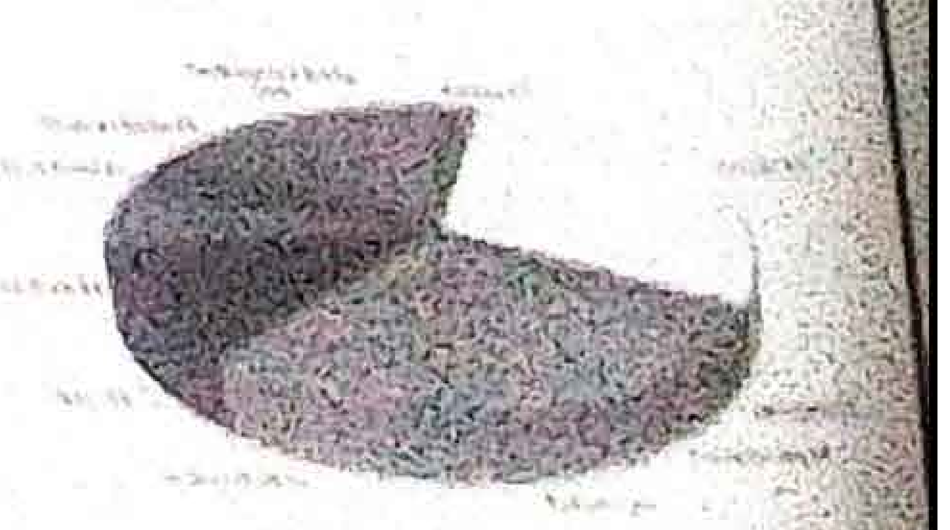
REHOVOLT COMMUNITY CENTRE

Architects: Kimmel Eshkolot Architects
Area: 2700 m²
Year: 2016
Project Manager: Miki Gronsky
Contractors: Bonei Binyan LTD
City: Rehovot
Country :Israel

INFERENCE
- It is up to date with the modern installation methods, materials and finishes.
- Using contrasting materials such as wood, metal and concrete.
- People of all age, ethnicity, sex, etc. are able to use the space.
- This community center has a lot of impact on the people it serves.
- These spaces and activities allow people to [illegible] their time and release the stress they have. The social bonds that are created at community.
- It help build strong, safe and inclusive communities, social interaction, [illegible] pride and aesthetics all play a role.
- The context and location are integral to formulating appropriate and functional interior spaces.

Site Features
1. community centre
2. Public library
3. Elementry school
4. country club
5. entrance plaza
6. central courtyard
7. Library plaaza
8. Roof Terrace
9. Teen Balcony
10 Packing lot
11 Basketball court

Area Division



Recreational activities for different age group

1.Preschool-Aged Children (3-5 Years)
Musical adventures, indoor play area, sensory and nature based programs, art and crafts, toddlers games.

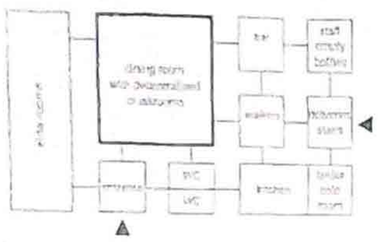
2 Children And Adolescents (6-17 Years)
Vigorous Activity such as running or soccer,
Activity that strengthens muscles such as climbing or push ups
Activity that strengthens bones such as gymnastics or jumping ropes

3. Adults (18-64 Years)
Hiking, trekking, picnic, cycling, indoor or outdoor sports like badminton, basketball, football, tennis, etc, Vetetable market, Departmental store , Restaurant

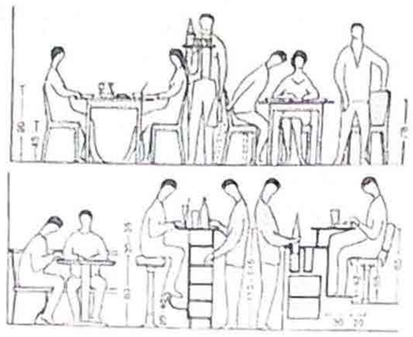
4. Older Adults (65 Years And Older)
Activities involve, jogging, walking, yoga, dance, Open interactive space etc.

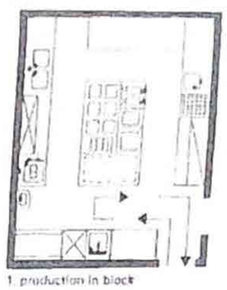
5.Adults With Chronic Conditions And Special Needs
Moderate-intensity aerobic physical activity a week

Restaurant and cafe

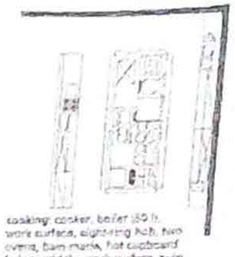


CIRCULATION: 3'-4" TO 4'-4"
FOR TROLLEY





② Kitchen for restaurant with 60-100 places



④ Restaurant kitchen for 150-200 meals

Fitness centre

Room size:
For 40-45 user = 200 sq. M
For 12 users = 40 sq.M.
Clear room height = 3 m

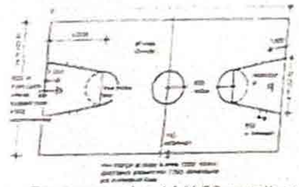
Futsal

- Football Court Size= 40mX20m
- At least 4m ceiling height

Badminton

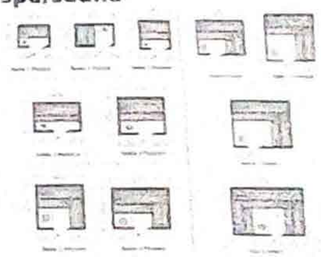
- Singles court is 17' X 44', doubles court is 20' X 44' with a 5'-0" minimum unobstructed area on all sides.

Basketball



- Playing court is 14 X 26 m with an unobstructed space of 1 m minimum to 2 m recommended on all sides

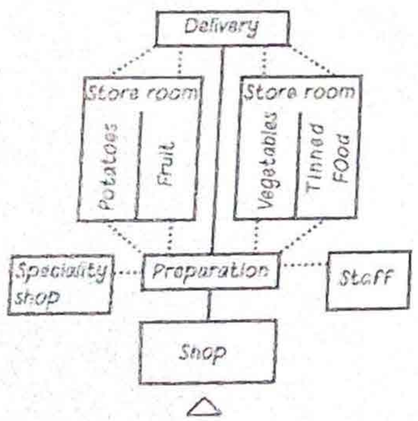
spa/sauna



Dance/Music Studio

3m² per person - primary age range
5m² per person - secondary & tertiary age range

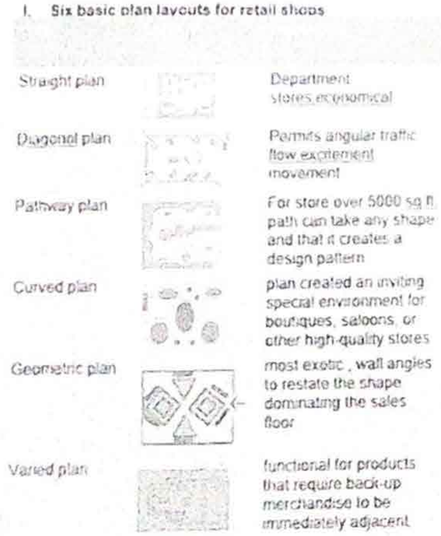
Vegetable Market



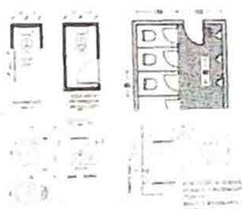
Functional Diagram

Departmental Store

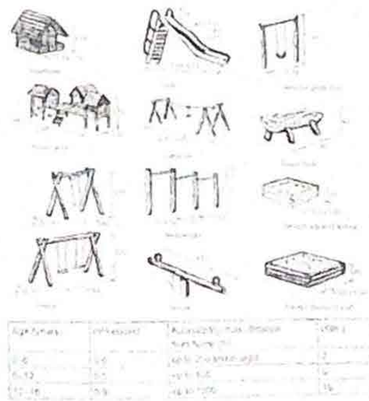
I. Six basic plan layouts for retail shops



Toilet



Playground

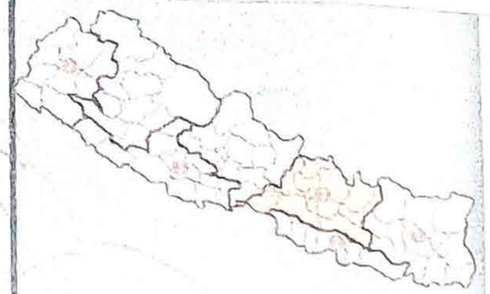


Multi purpose hall

ROUND	SQUARE	RECTANGULAR
30" : 2-3 PEOPLE	24" : 2 PEOPLE	18 X 16" : 2 PEOPLE
36" : 4 PEOPLE	30" : 4 PEOPLE	18 X 72" : 3 PEOPLE
42" : 5 PEOPLE	32" : 4 PEOPLE	18 X 96" : 4 PEOPLE
48" : 6 PEOPLE	36" : 4 PEOPLE	30 X 48" : 4 PEOPLE
54" : 7-8 PEOPLE	42" : 8 PEOPLE	30 X 72" : 6 PEOPLE

AREA PER PERSON - 12 SQ. FT

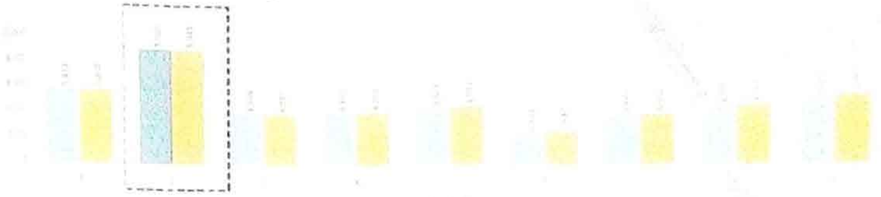
COMMUNITY CENTRE
AT DUWAKOT



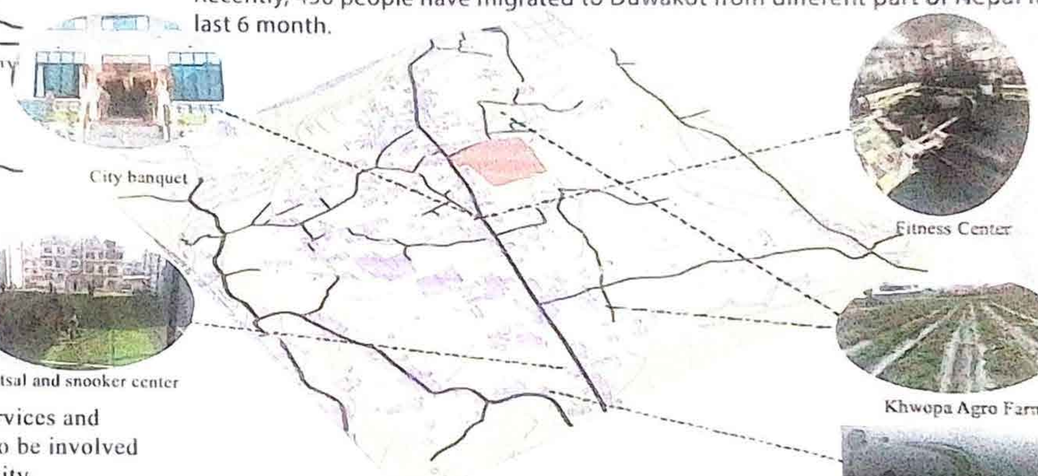
LOCATION

Duwakot is a settlement and former VDC
Municipality:Changunarayan Ward 2
District:Bhaktapur
GPS cordinate:27°41'19"N 85°24'49"E
It is about 20 km away from KTM.
It is located on the north of the valley.
Geography:Terrain, Slope land

Duwakot, situated in Changunarayan Municipality, has experienced remarkable population growth over the past few decades, reflecting its status as one of the rapidly expanding settlement areas
Total tole 20-22
According to the data of census Nepal
At the time of the 1991 Nepal census, it had a population of 5,157 with 905 houses in it. According to 2021 census it had a population of 18,106, 9065(M),9041(F) with 4145 houses in it. Average household:4.37

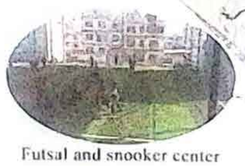


Recently, 450 people have migrated to Duwakot from different part of Nepal in last 6 month.



PROBLEM STATEMENT

No provision of community centers and wellness centers

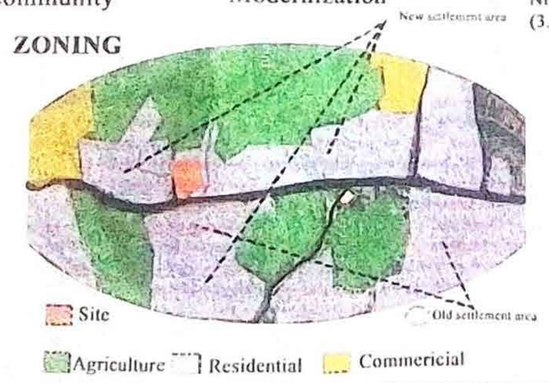

Futsal and snooker center

Lack of services and programs to be involved in community.

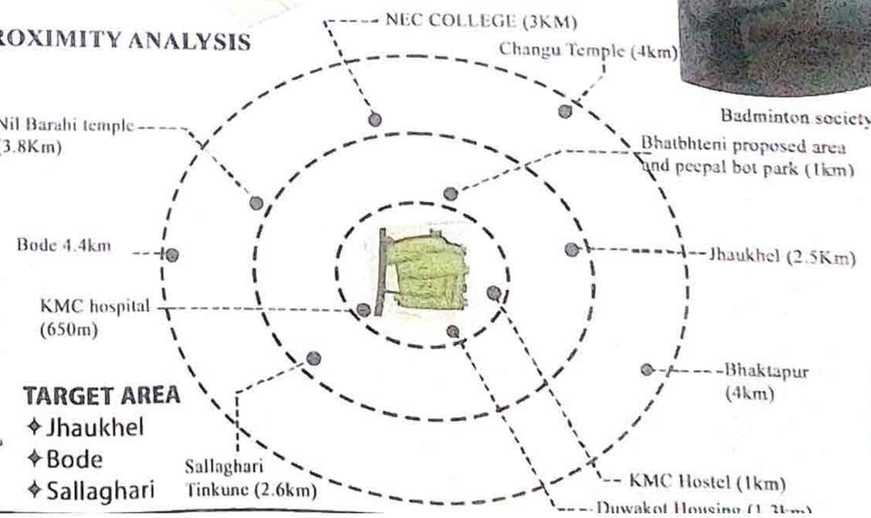
Loss of sense of community

Increasing Westernization and Modernization

ZONING



PROXIMITY ANALYSIS



TARGET AREA

- Jhaukhel
- Bode
- Sallaghari

SPECIALITY

- Mixed caste population
- Temples: Tripurasundari
  Bhaidhoka
  Bhairav
- Promotes Agriculture
- Animal Husbandry
- Terrace Farming
- Tomato Farming

MAIN NEEDS

- Health services/ education
- Recreational centre
- Proper community management
- Proper food stalls/groceries shops
- Employment oppurtunity
- Multipurpose hall
- Library
- Preschool
- Parks
- Elders club

FUTURE PLAN

According to chief of ward2 Duwakot: **Mr.Som prasad Pradhan**
Multipurpose hall (80 ropani) includes ward office, parks for children,Health post, clinics, and elderly club with recreationa and wellness centers.

TARGET GROUP

- Middle class
- High class

MAIN OCCUPATION

- Agriculture
- Job
- Business

EVENTS

Recreational
Gym and fitness club
Morning(6-12)
Evening(3-7)
Women Dance centre

Different organization
Badmintonclub
Football club
Basketballclub

EVENTS

Jestha Nagarik chowk where events like Bhajan,kritan, Pooja and feast takes place for elderly people

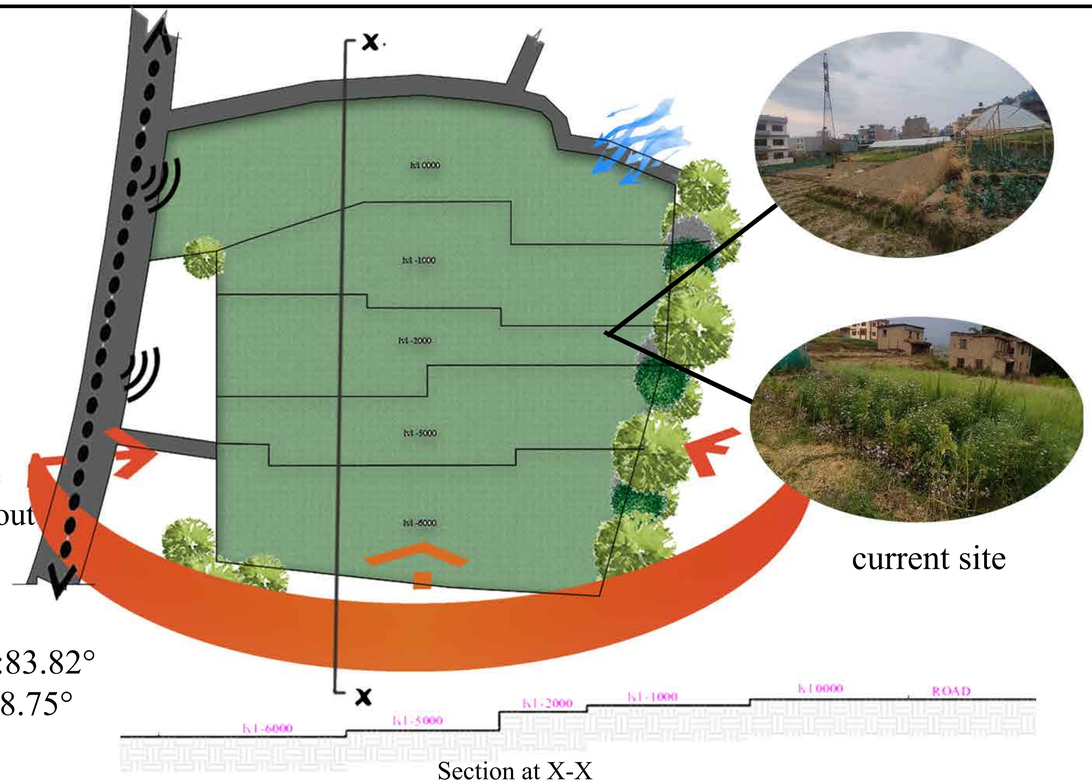
Yoga samiti
- Mangal samiti
- Pathivara Yog sadhan
- Nagisthan yog sadhan

COMMUNITY CENTER AT DUWAKOT

AREA:11583.68SQM(22 Ropani 12 Anna)
NEARBY:Bus stop (7min,500m)
ACCESSIBILITY:Lies in 20km away from central KTM)
12.1km away from Lalitpur
4.6km away from central Bhaktapur
CONTEXT:2.7km North from Araniko Highway

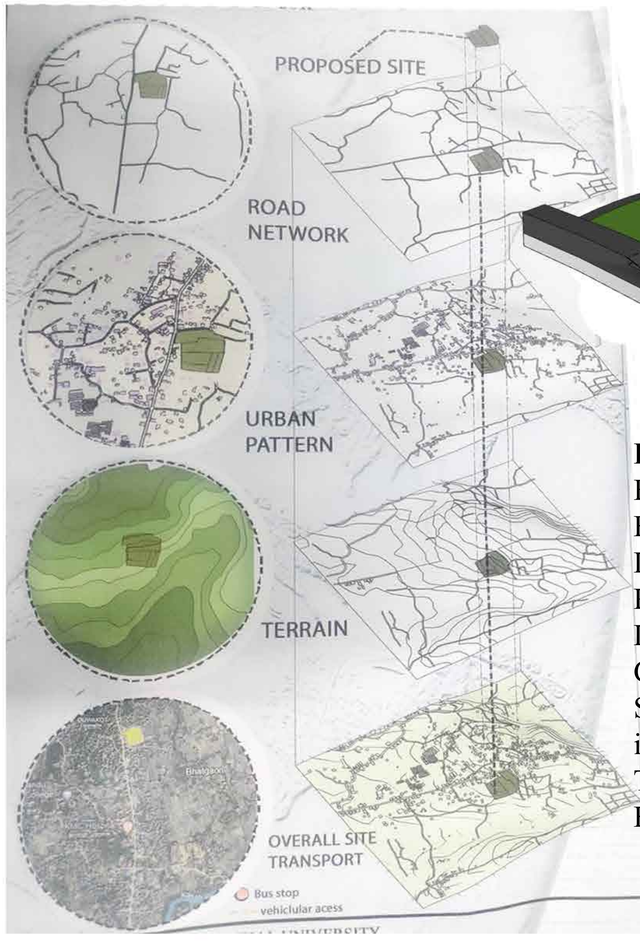
PHYSICAL ASPECTS
Topography:south facing
Countour 1m-3m
Current use farm land
Ownership:private
Soil type: Lomy textured soil

Orientation:North-south
Climate:Sub tropical climate
Hydrology:kasan river at about 1km distance

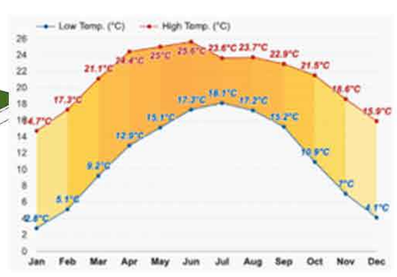


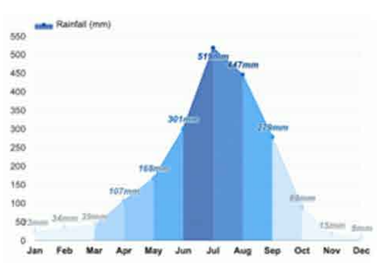
current site

Section at X-X



Summer angle:83.82°
Winter angle:38.75°





INFRASTRUCTURE AND SERVICES
ELECTRICITY AND TELEPHONE
From nearest pole
DRINKING WATER SUPPLY
Public tap,wells,and household bore water
DRAINAGE AND SEWARAGE
Combined to sewr system
SEPTIC TANK SYSTRM
individual underground system
TRASPORT
Bus stop 500m from site

Hottest month is July(18.1°C)
- The coldest month is January(2.8°C)
- Highest relative humidity are July and August (87%)
- Lowest relative humidity in March (40%)

windiest month is April (8Km/h) The calmest moth is August(4.9Km/h)

ECONOMIC ASPECT
- Higher Middle or lower middle economic group
- Economic activities: agriculture, business, offices, shops,etc

SOCIO-CULTURAL ASPECTS
INHABITANTS:
Chhetri, Brahmin, Newari, Gurung, Rai, Limbu
- OLD SETTLEMENT: Newari Traditional Building(Brick Facade)
- NEW SETTLEMENT: Modern Detached Building

SITE ANALYSIS

SETBACK: 1.5m-3m
ROW: 7m(main road)
4m(4m road+Intersection)
FAR: 1.75
GCR: 40%
Parking: 10% of site area

SWOT

STRENGTH
-Inside of the Residential area
-Transportation and road networks, Contour land with beautiful views ,Good infrastructures i.e Communication water supply, -Close proximity to nature strong connection with the environment and convenient access to city core area.

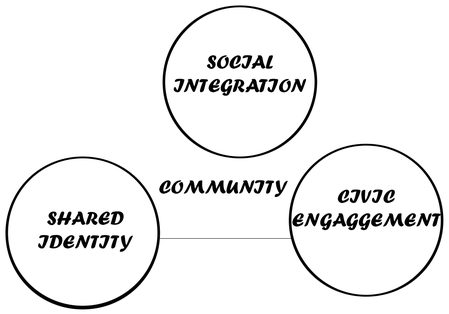
WEAKNESS
-Sloping or uneven terrain pose challenges for construction and accessibility

OPPORTUNITY
-Resiential area -Offers roo for future growth and development, providing flexibility.
-Employment Economy Development
-Can be developed as a focal point of a community

THREATS
Introducing a community center could potentially increase noise levels and traffic in the residential area, which may cause inconvenience or discomfort to nearby residents.

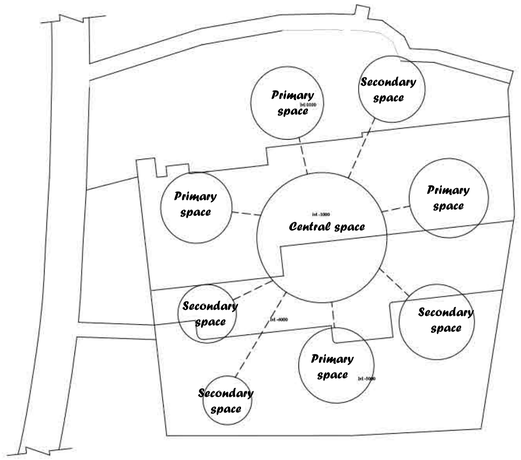
COMMUNITY CENTER AT DUWAKOT

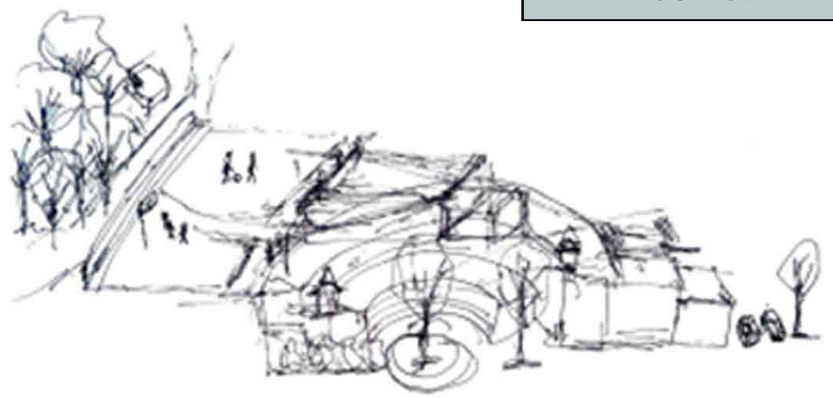
CONCEPT



Problem:individualism, social disintegration, lack of public spaces,

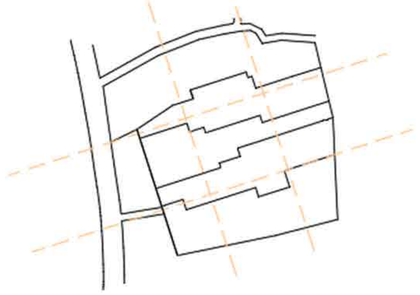
Solution:Bring social integrity by means of activities for socialization, recreation and learning.





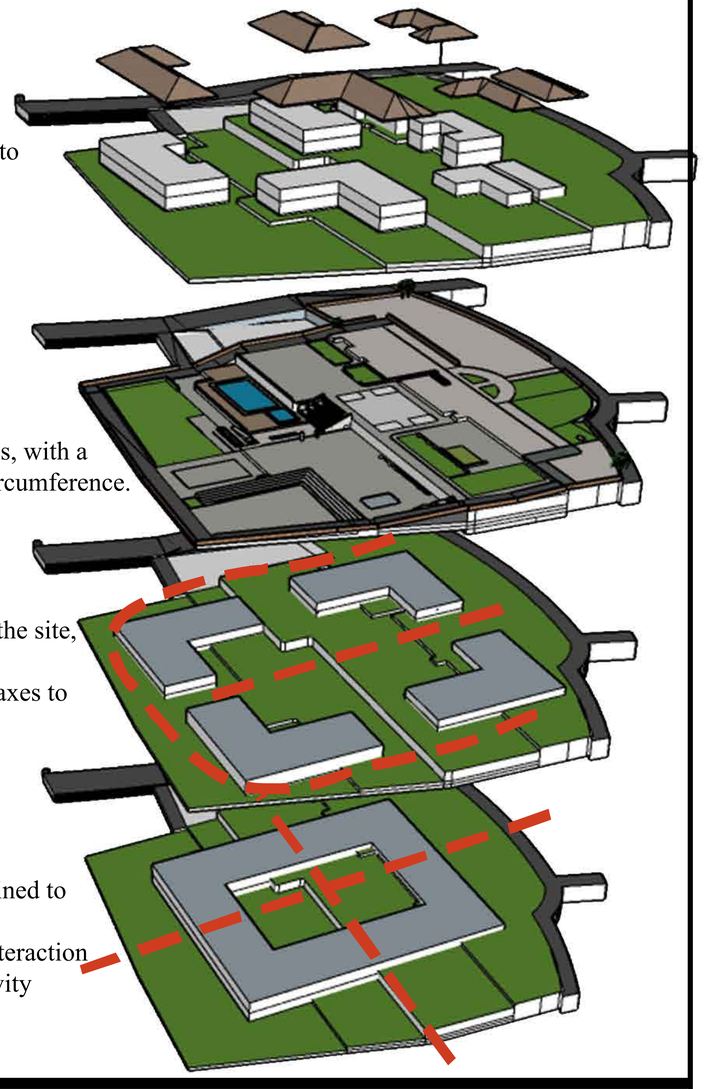
- A central space is provided, allowing other areas or activities to revolve around it.

FORM DEVELOPMENT

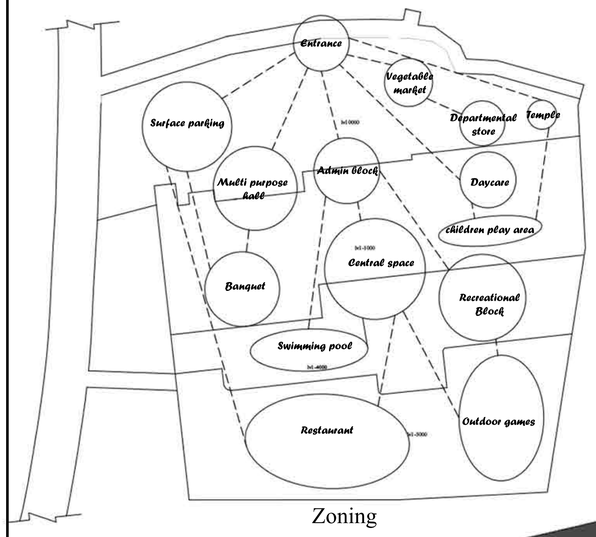


-Create a conversing point and break out spaces to interact
-Taking references through existing contour

-Lshape and U shape building is provided.
- Provide pocket spaces within the building to ensure privacy and open spaces.
- Include spill-out areas for waiting.
- Designate some spaces for gaming and recreation.



- Pathways are provided along the central axis, with a jogging and cycling track around the site's circumference.



Zoning

- An axis is established from the center of the site, extending both horizontally and vertically.
- The building is then divided along these axes to create distinct primary spaces.

-In order to preserve the opened site, some built parts are build one level below ground level.
-Visual linkage to the gathering and interaction space enhance the public character and invites more people.
- A roof is added to enhance temperature regulation.
- The roof design reflects the traditional identity of Bhaktapur, which has diminished over time.

-Placing the building all arouns the site alined to contour
-Providing the ample central spaces for interaction and community common spaces and activity
-Built spaces around open spaces.

PURBANCHAL UNIVERSITY
KHWOPA ENGINEERING COLLEGE
DEPARTMENT OF ARCHITECTURE

THESIS: COMMUNITY CENTER AT DUWAKOT
TITLE: CONCEPT

PRESENTED BY: AAYUSHAMA KARMACHARYA
750102

COMMUNITY CENTER AT DUWAKOT

PROGRAM

S.N	Spaces	Sub categories	No.	Area	Total Area	Users
1	Café and restaurant					
		Reception	2	20	40	2
		Kitchen	1	120	120	12
		Storage	1	28	28	
		Lounge	1	40	40	26
		Dinning area	2	340	680	75
		Restroom	2	45	90	10
		BAR	1	30	30	10
		Outdoor		138	138	15
				761	1130	150

S.N	Spaces	Sub categories	No.	Area	Total Area	Users
2	Farmers market					
		Retail	12	6	72	24
		Storage	1	20	20	
		Loading dock	2	36	72	
		Outdoor area	1	80	80	16
				142	244	40

S.N	Spaces	Sub categories	No.	Area	Total Area	Users
3	Banquet					
		Main hall (seating +stage+backstage)	2	245	490	250
		Dressing room	2	15	30	6
		Catering	2	78	156	16
		Restroom	4	18	72	10
		changing	1	18	10	
		Storage	1	15	15	
					775	282

S.N	Spaces	Sub categories	No.	Area	Total Area	Users
4	Community library					
		Reception	1	6	6	2
		Reading	1	92	92	18
		Stacks (300 books)	1	80	80	
		Outdoor	1	42	42	10
		Restroom	2	15	30	4
				235	250	32

S.N	Spaces	Sub categories	No.	Area	Total Area	Users
5	Admin block					
		Reception	1	6	6	1
		Office space	1	36	36	8
		Meeting room	1	30	30	9
		Storage room	1	9	9	
		Restroom	2	15	30	6
		Differently able T/B	1	8	8	1
		Pantry	1	20	20	2
		Lobby	1	36	`36	10
		Record and filling area	1	12	12	3
		Waiting room	1	25	25	2
		Maintenance room	1	8	8	1
				135	250	31

S.N	Spaces	Sub categories	No.	Area	Total Area	Users
6	Guard house					
		Kitchen and dinning	1	9	9	10
		Bedroom	1	17	17	
		Tiolet	1	4	4	
				30	30	1

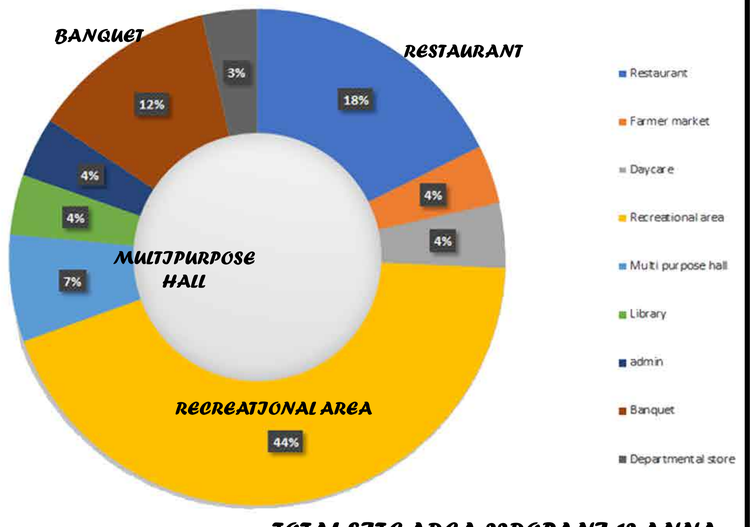
S.N	Spaces	Sub categories	No.	Area	Total Area	Users
7	Day care					
		Classroom	1	36	36	12
		Practical training and demonstrations	1	80	80	6
				270	270	18

S.N	Spaces	Sub categories	No.	Area	Total Area	Users
8	Multi purpose hall					
		main hall	1	330	330	180
		Waiting area	2	2	12	
		rehasal room	1	20	20	2
		toilet	3	18	54	3
		changing room	2	15	30	
					446	185

S.N	Spaces	Sub categories	No.	Area	Total Area	Users
9	Recreational area					
		Yoga class	1	60	60	15
		Gym	1	102	102	30
		spa sauna	1	238	238	30
		swimming area changing	2	586	586	16
		Dance and music room	1	90	90	20
		wall climbing	1	210	210	20
		Reception+lobby	1	70	70	14
		control room	1	25	25	5
		store room	1	25	25	
		changing room	2	25	50	12
		lobby	2	60	120	
		Locker	4	15	60	
	outdoor	football	1	935	935	30
		badminton	2	115	230	12
				2556	2801	150

S.N	Spaces	Sub categories	No.	Area	Total Area	Users
10	Departmental store					
		main store	1	144	144	40
		store room	1	20	20	10
		TOILET	2	16	32	4
				230)	230	

AREA DISTRIBUTION



TOTAL SITE AREA:22ROPANI 12 ANNA
11583.68SQM
Total land coverage:3200 SQM
GCR:27.6%

INDEX	
A	PARKING
B	ADMIN + LIBRARY
C	MULTI PURPOSE HALL
D	DEPT STORE
E	BANQUET
F	DAYCARE
G	PLAYGROUND
H	RECREATIONAL BLOCK
I	SWIMMING POOL
J	RESTAURANT
K	OUTDOOR AREA
L	BADMINTON COURT
M	TEMPLE+ PATI
N	VEGETABLE MARKET

TOTAL SITE AREA:11583.83 Sqm (22 Ropani 12 Anna)

BUILTUP AREA:3410sqm

GCR:3200 sqm (27.6%)

PURBANCHAL UNIVERSITY KHWOPA ENGINEERING COLLEGE DEPARTMENT OF ARCHITECTURE	THESIS: COMMUNITY CENTER AT DUWAKOT TITLE: MASTER PLAN	PRESENTED BY: AAYUSHAMA KARMACHARYA| 750102 SCALE:1:250 DATE: 2081/05/06	01

INDEX	
A	PARKING
B	ADMIN + LIBRARY
C	MULTI PURPOSE HALL
D	DEPT STORE
E	BANQUET
F	DAYCARE
G	PLAYGROUND
H	RECREATIONAL BLOCK
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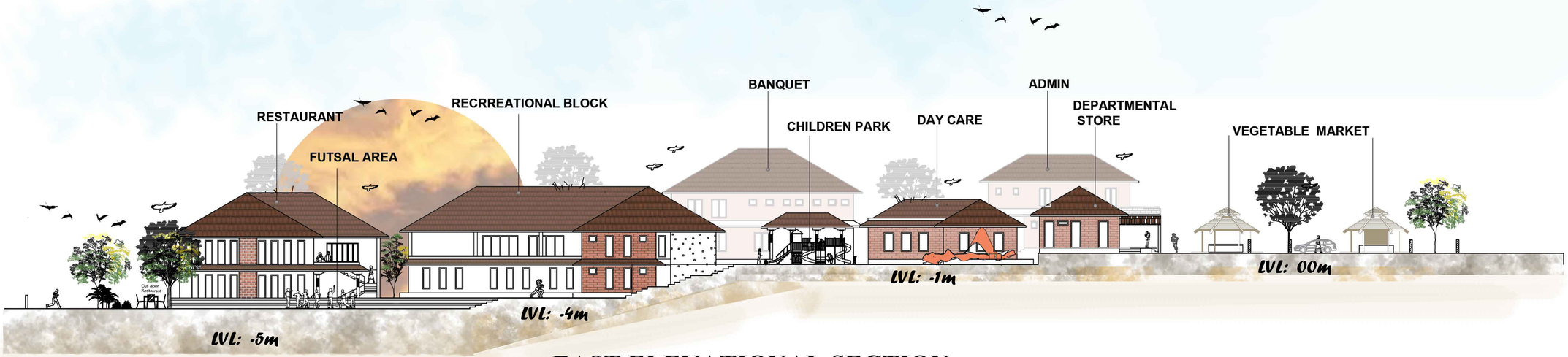
N	VEGETABLE MARKET

PURBANCHAL UNIVERSITY
KHWOPA ENGINEERING COLLEGE
DEPARTMENT OF ARCHITECTURE

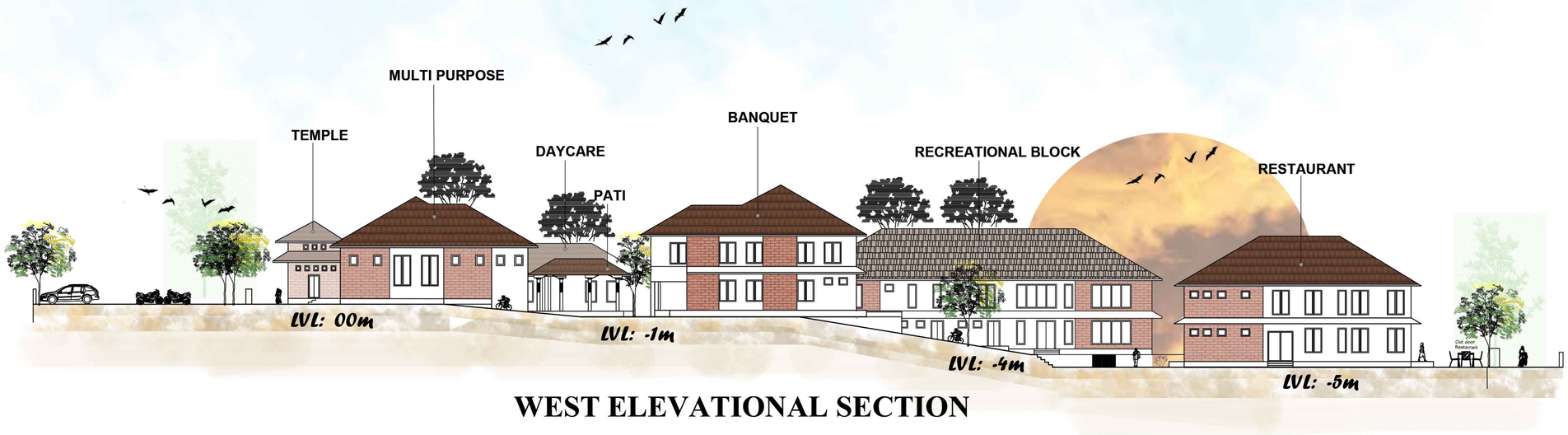
THESIS: COMMUNITY CENTER
TITLE: ROOF PLAN

PRESENTED BY: AAYUSHAMA KARMACHARYA| 750102
SCALE:1:250 DATE: 2081/05/06

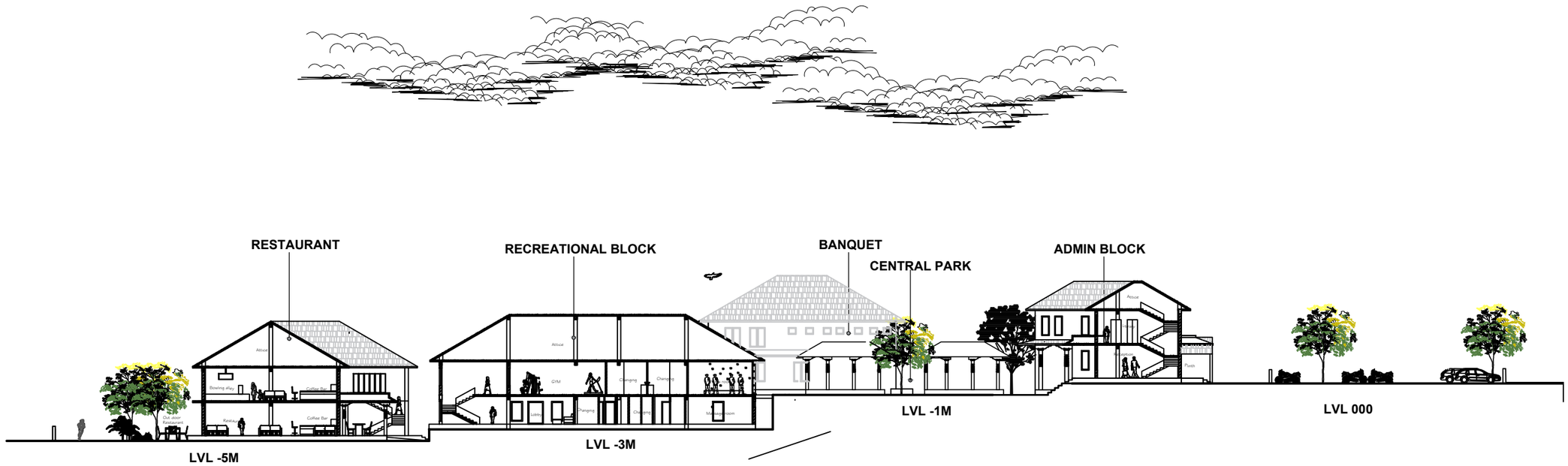
02



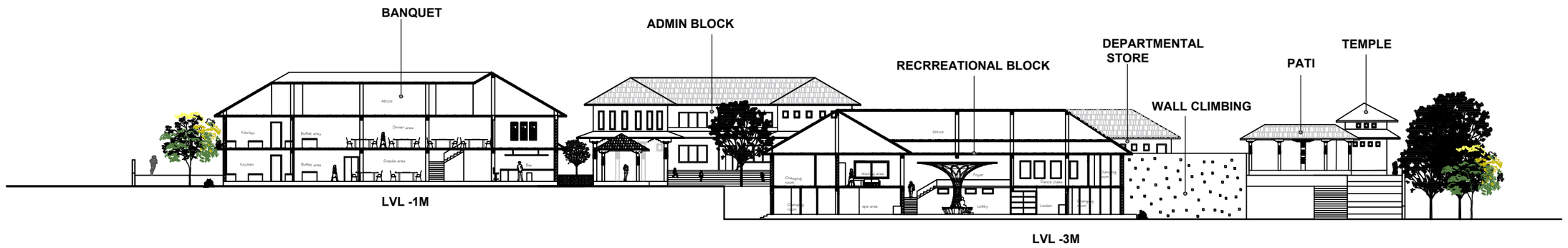
EAST ELEVATIONAL SECTION



WEST ELEVATIONAL SECTION



SECTION AT X-X



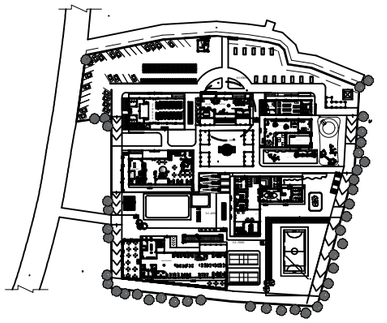
SECTION AT Y-Y

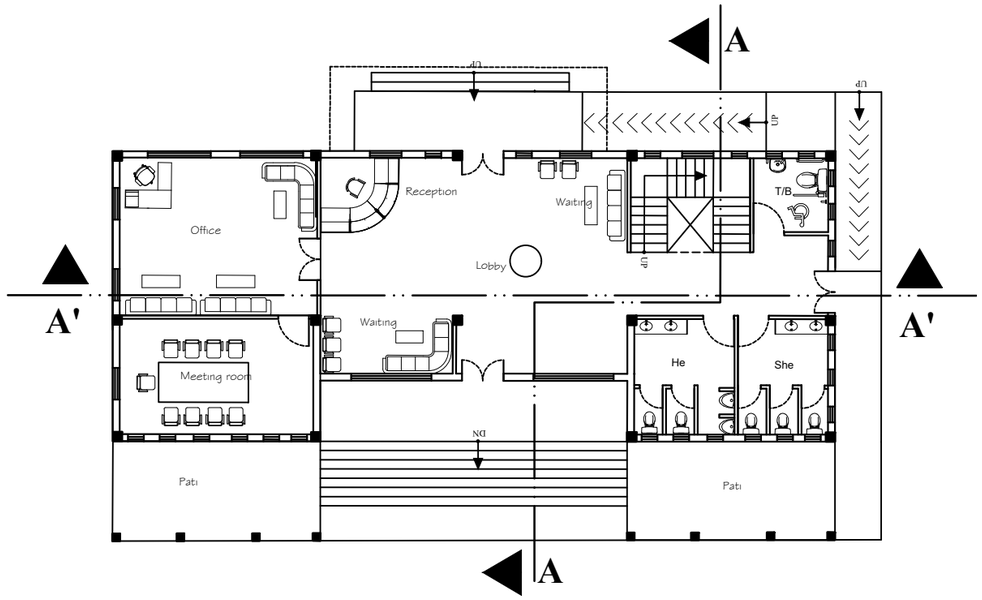
PURBANCHAL UNIVERSITY
KHWOPA ENGINEERING COLLEGE
DEPARTMENT OF ARCHITECTURE

THESIS: COMMUNITY CENTER AT DUWAKOT
TITLE: PROFILE SECTION

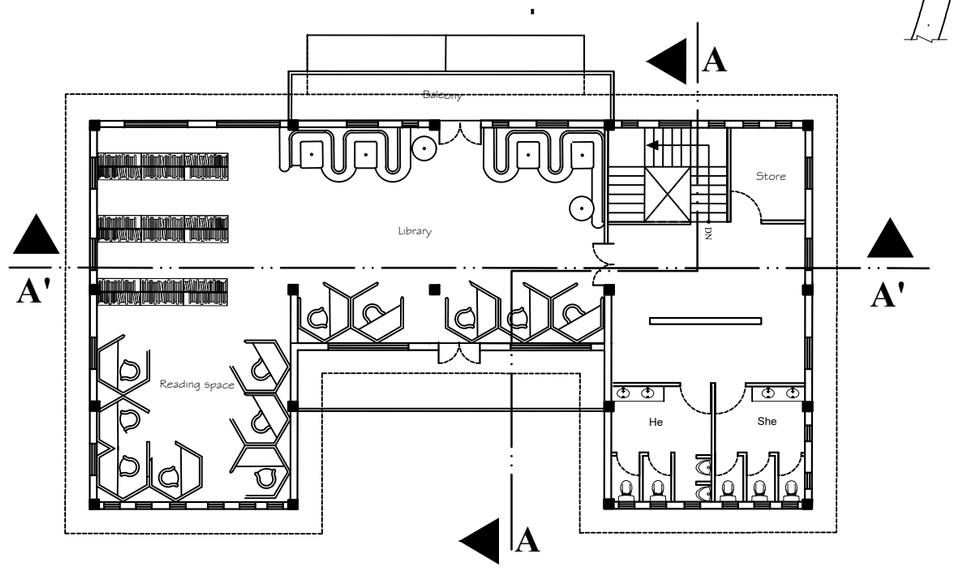
PRESENTED BY: AAYUSHAMA KARMACHARYA| 750102
SCALE:1:200 DATE: 2081/05/06

ADMIN+ LIBRARY

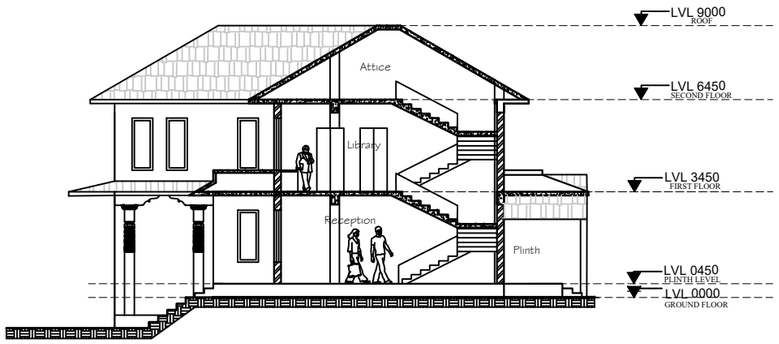




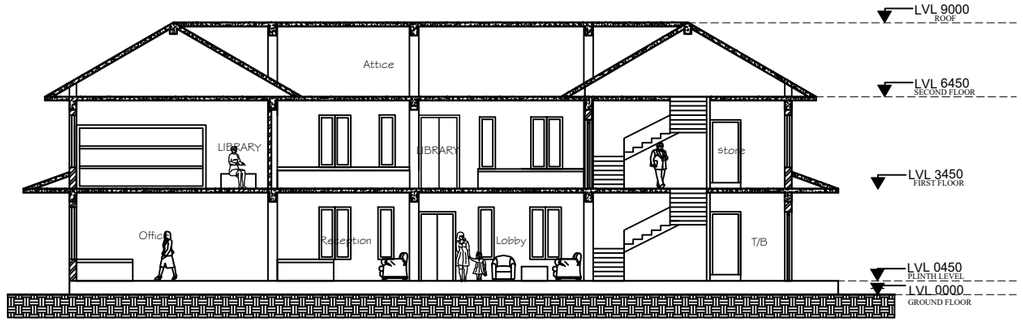
GROUND FLOOR
Area:250 sqm



FIRST FLOOR
Area:285sqm

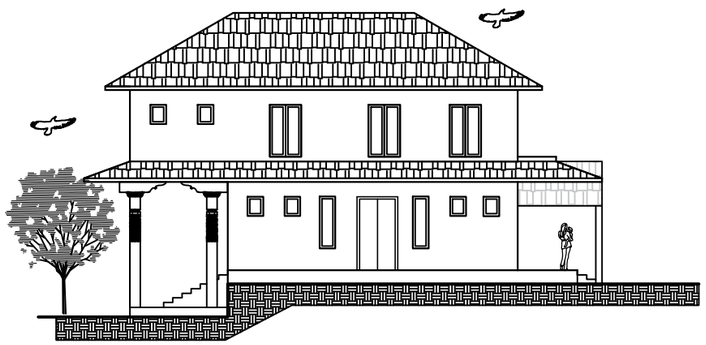


SECTION AT A-A

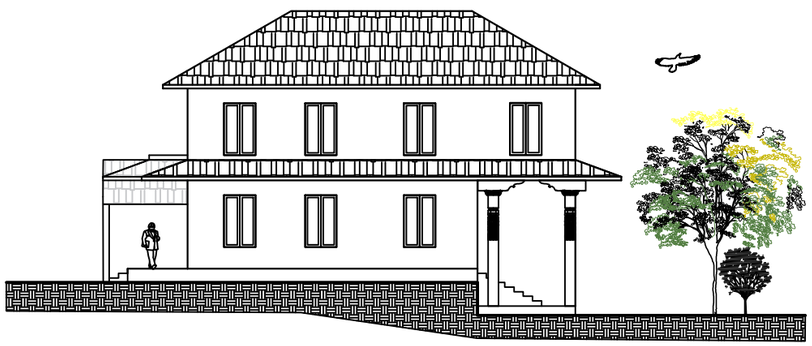


SECTION AT A'-A'

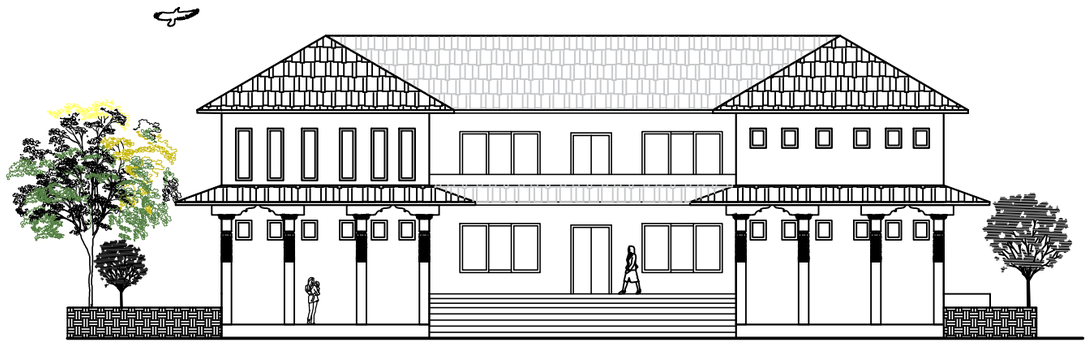
ADMIN+ LIBRARY



EAST ELEVATION



WEST ELEVATION



SOUTH ELEVATION

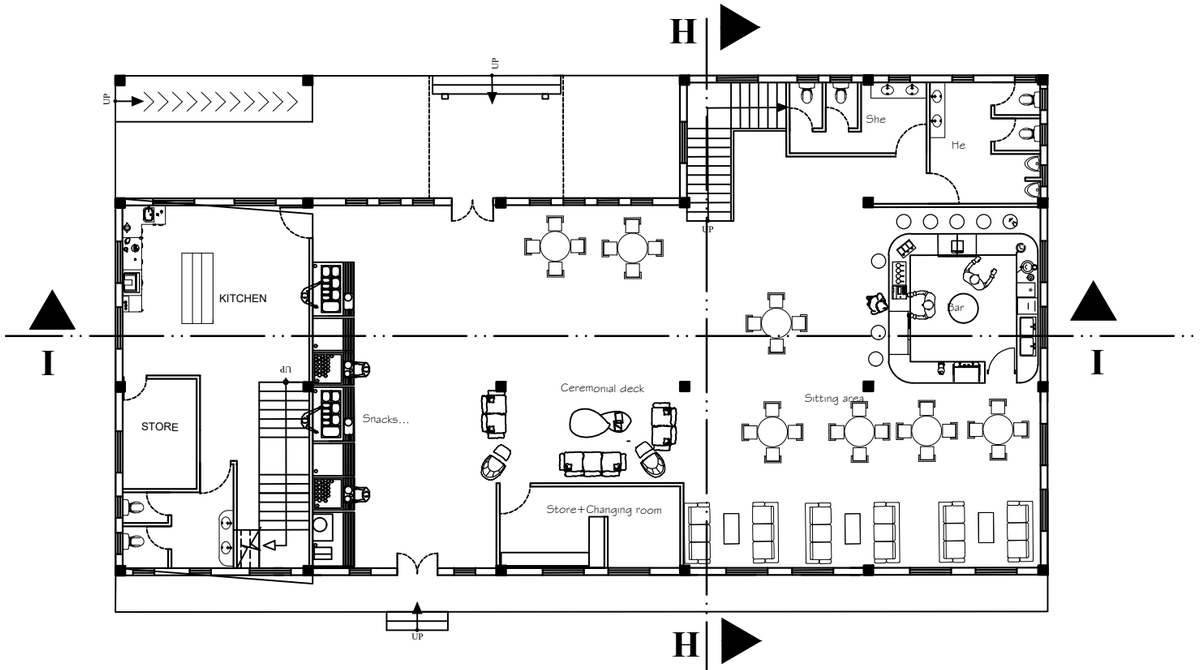
NORTH ELEVATION

PURBANCHAL UNIVERSITY
KHWOPA ENGINEERING COLLEGE
DEPARTMENT OF ARCHITECTURE

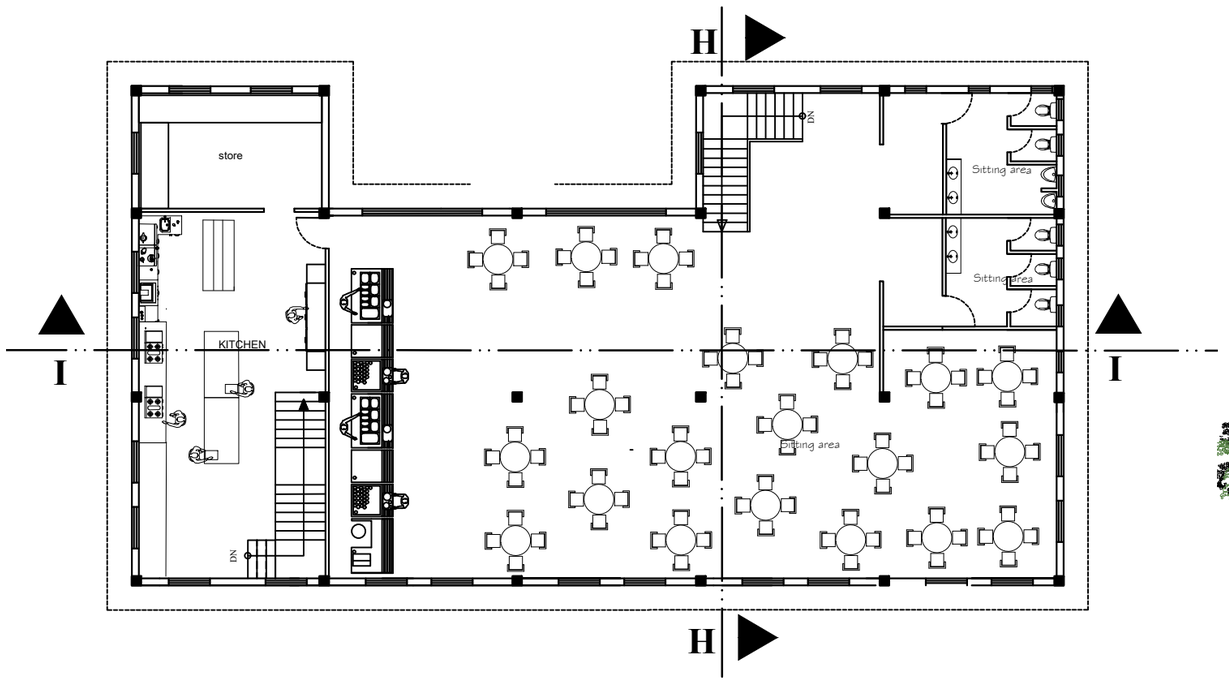
THESIS: COMMUNITY CENTER AT DUWAKOT
TITLE: ELEVATION

PRESENTED BY: AAYUSHAMA KARMACHARYA| 750102
SCALE:1:100 DATE: 2081/05/06

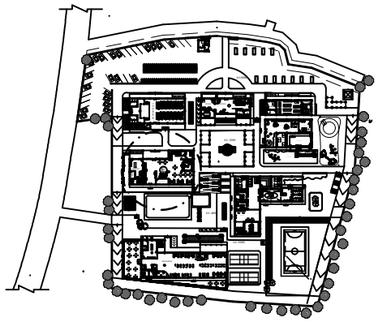
BANQUET

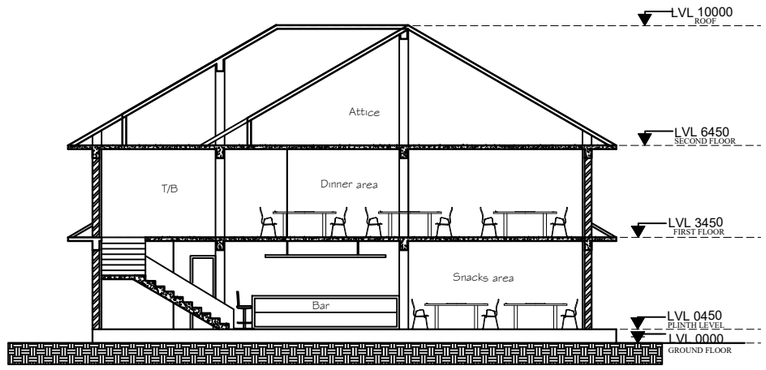


GROUND FLOOR
Area:425sqm

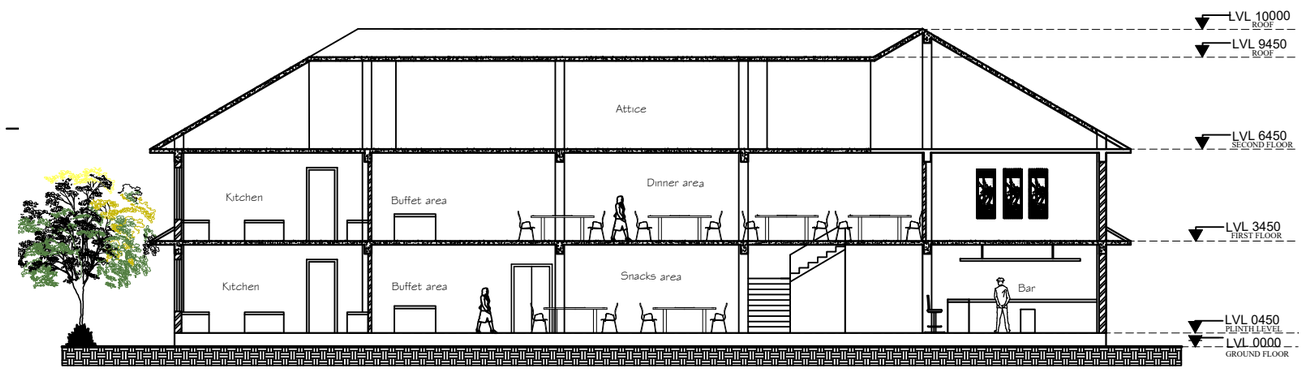


FIRST FLOOR
Area:450sqm





SECTION AT H-H



SECTION AT I-I

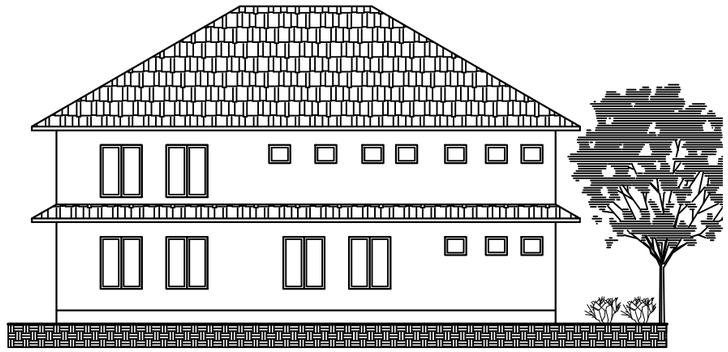
PURBANCHAL UNIVERSITY
KHWOPA ENGINEERING COLLEGE
DEPARTMENT OF ARCHITECTURE

THESIS: COMMUNITY CENTER AT DUWAKOT
TITLE: FLOOR PLAN

PRESENTED BY: AAYUSHAMA KARMACHARYA| 750102
SCALE:1:100 DATE: 2081/05/06

BANQUET

WEST ELEVATION



EAST ELEVATION

NORTH ELEVATION

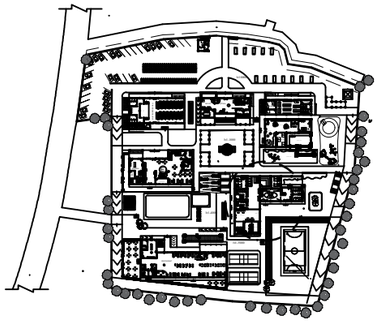
SOUTH ELEVATION

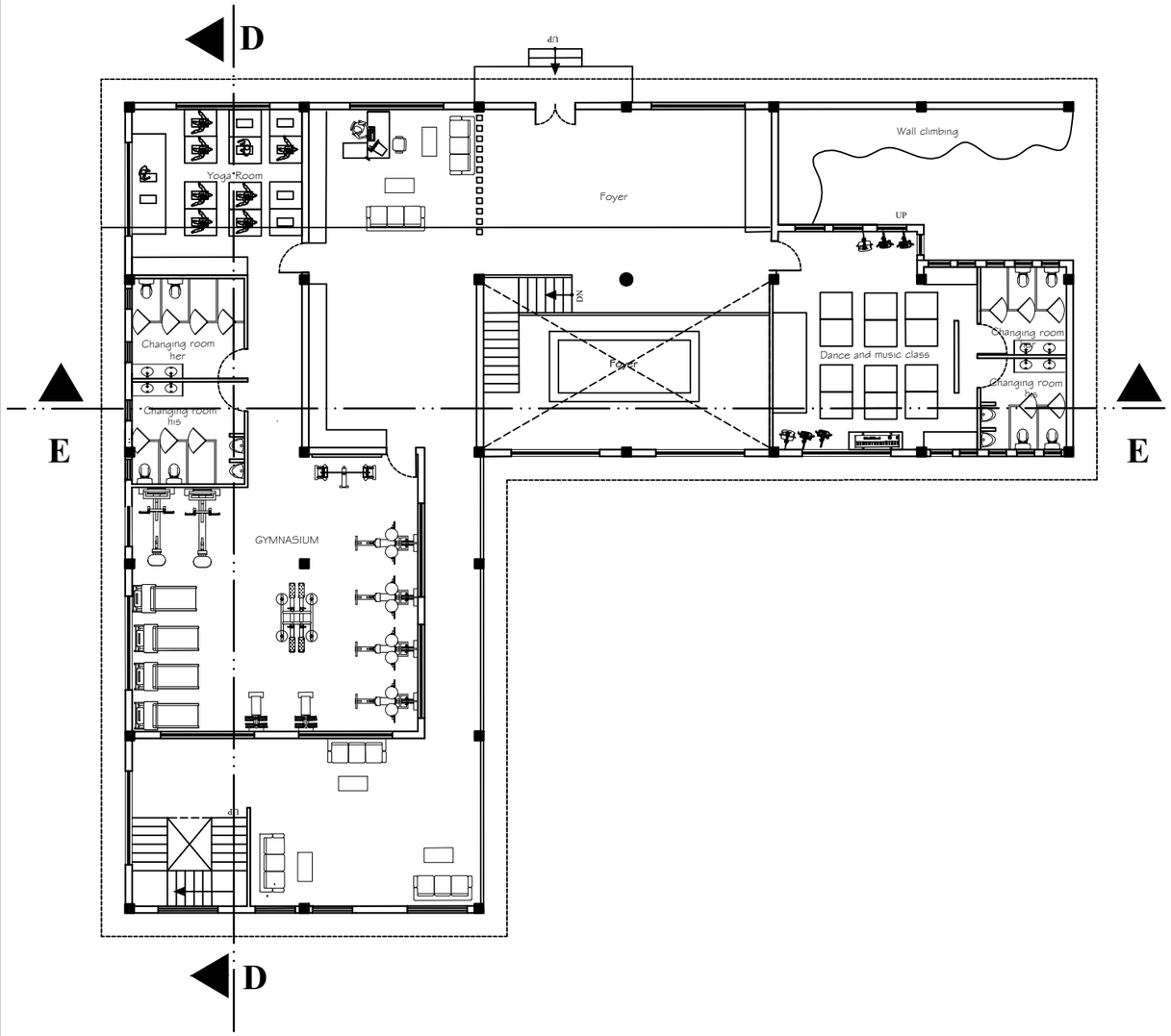
PURBANCHAL UNIVERSITY
KHWOPA ENGINEERING COLLEGE
DEPARTMENT OF ARCHITECTURE

THESIS: COMMUNITY CENTER AT DUWAKOT
TITLE: ELEVATION

PRESENTED BY: AAYUSHAMA KARMACHARYA| 750102
SCALE:1:100 DATE: 2081/05/06

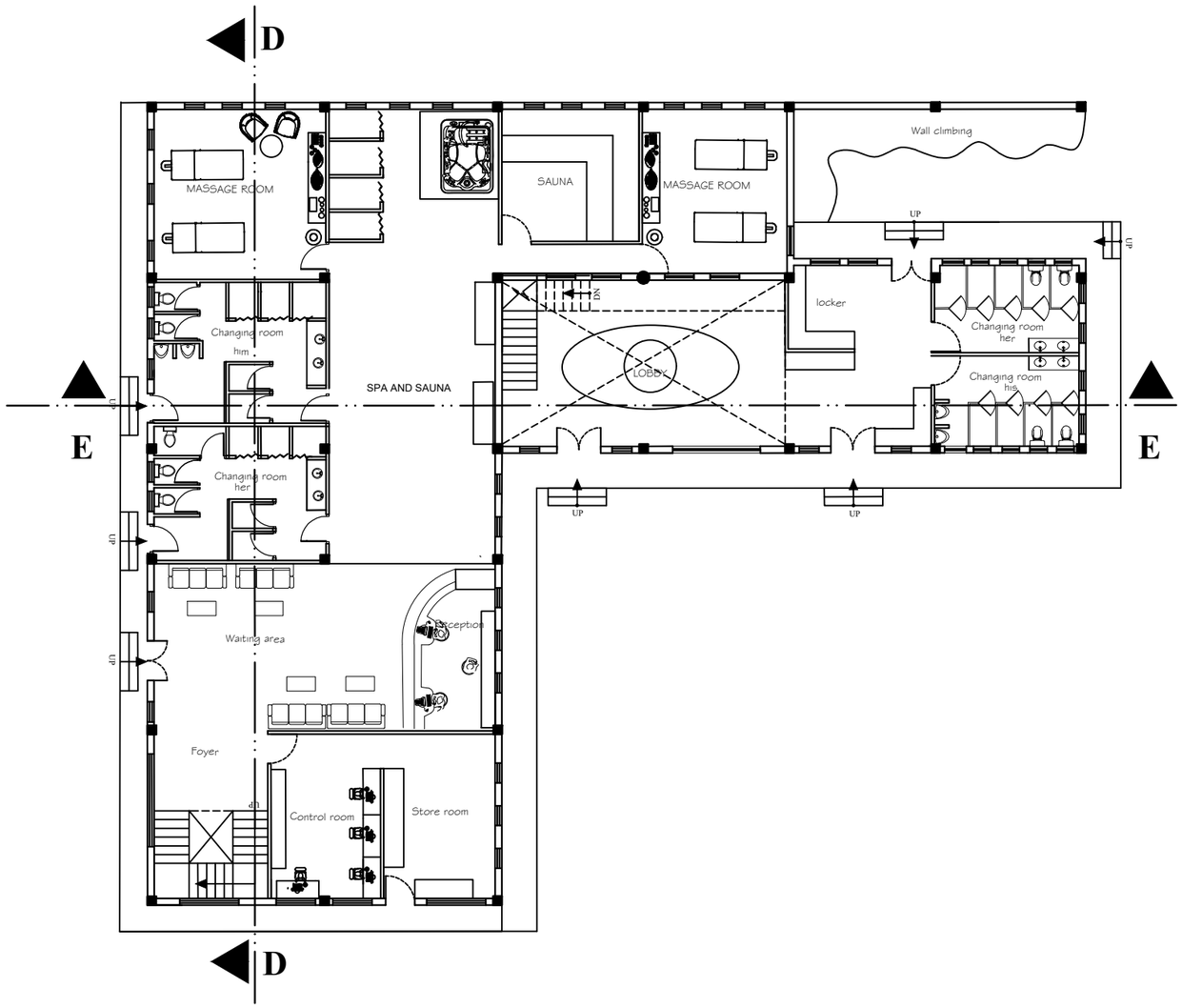
RECREATIONAL BLOCK





GROUND FLOOR

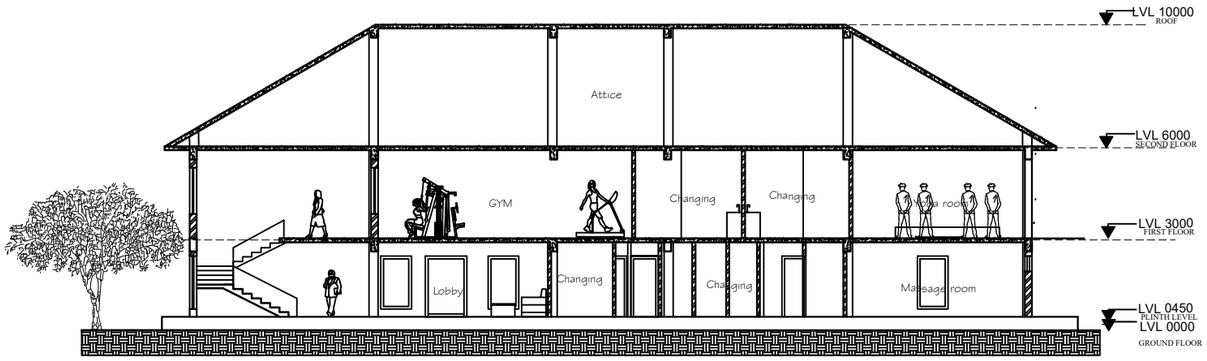
Area:520sqm



FIRST FLOOR

Area:535sqm

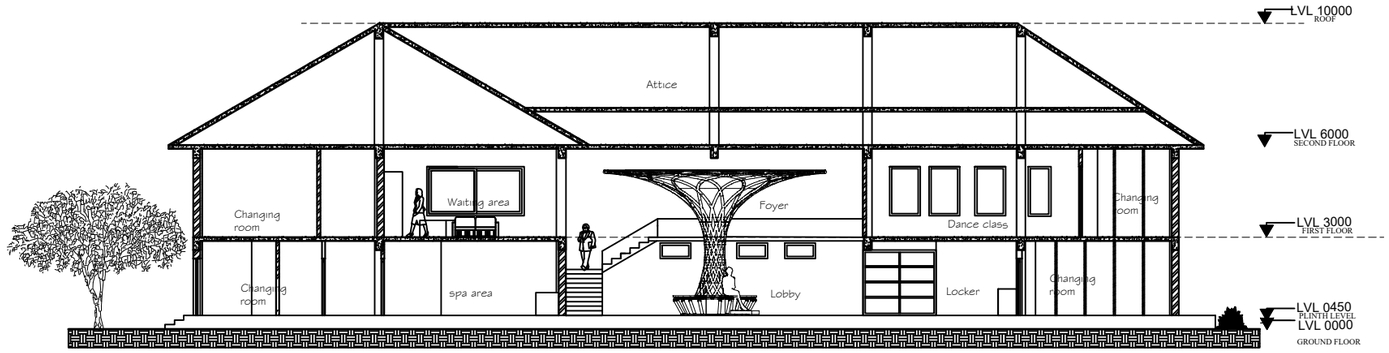
RECREATIONAL BLOCK



SECTION AT D-D

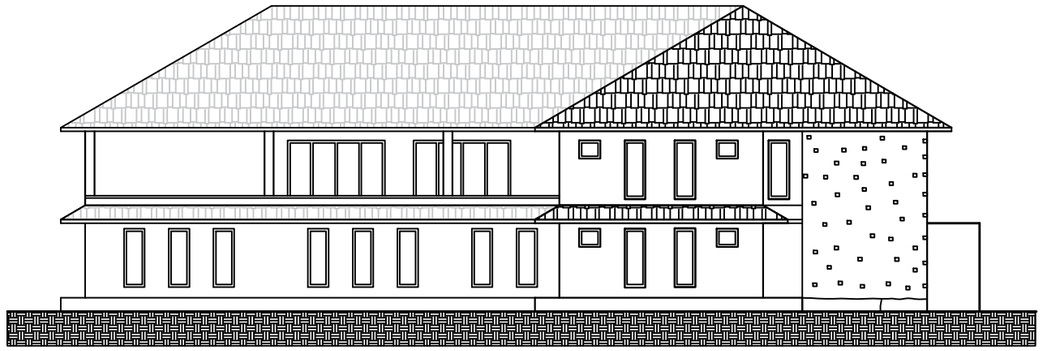
3D

3D



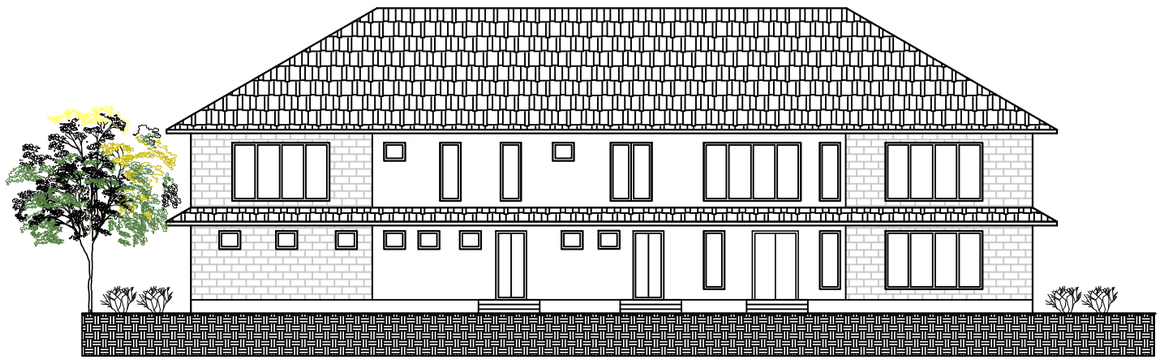
SECTION AT E-E

RECREATIONAL BLOCK

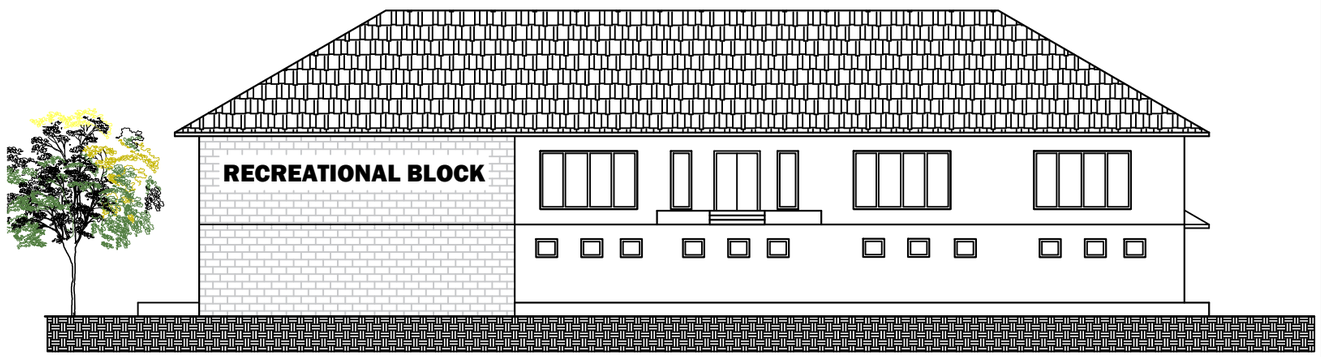


EAST ELEVATION

SOUTH ELEVATION



WEST ELEVATION



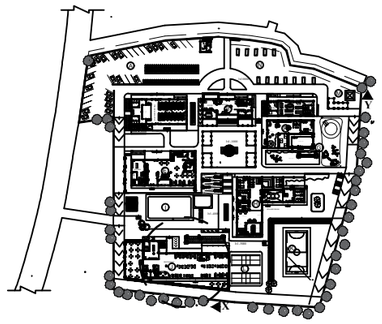
NORTH ELEVATION

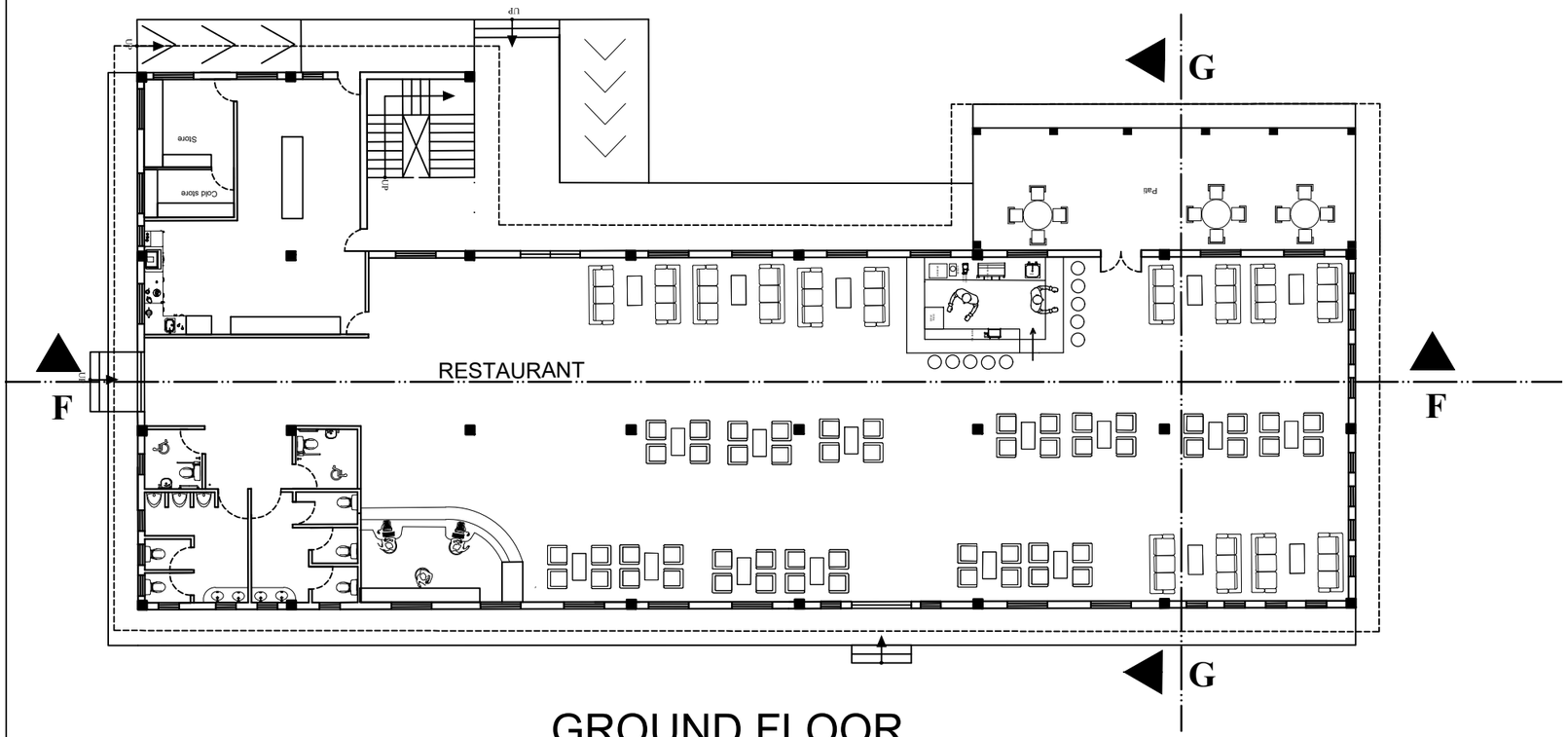
PURBANCHAL UNIVERSITY
KHWOPA ENGINEERING COLLEGE
DEPARTMENT OF ARCHITECTURE

THESIS: COMMUNITY CENTER AT DUWAKOT
TITLE: ELEVATION

PRESENTED BY: AAYUSHAMA KARMACHARYA| 750102
SCALE:1:100 DATE: 2081/05/06

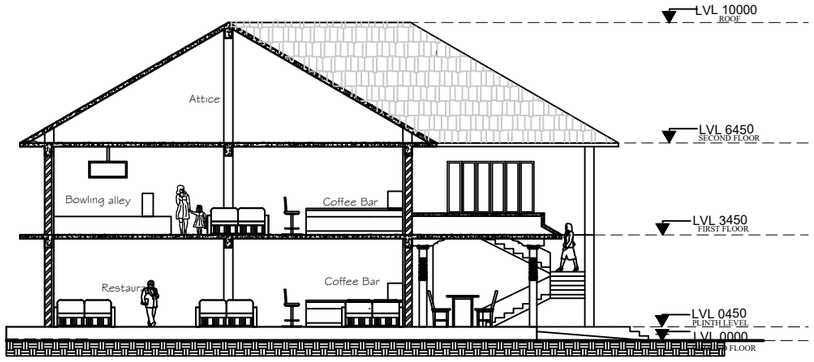
RESTAURANT



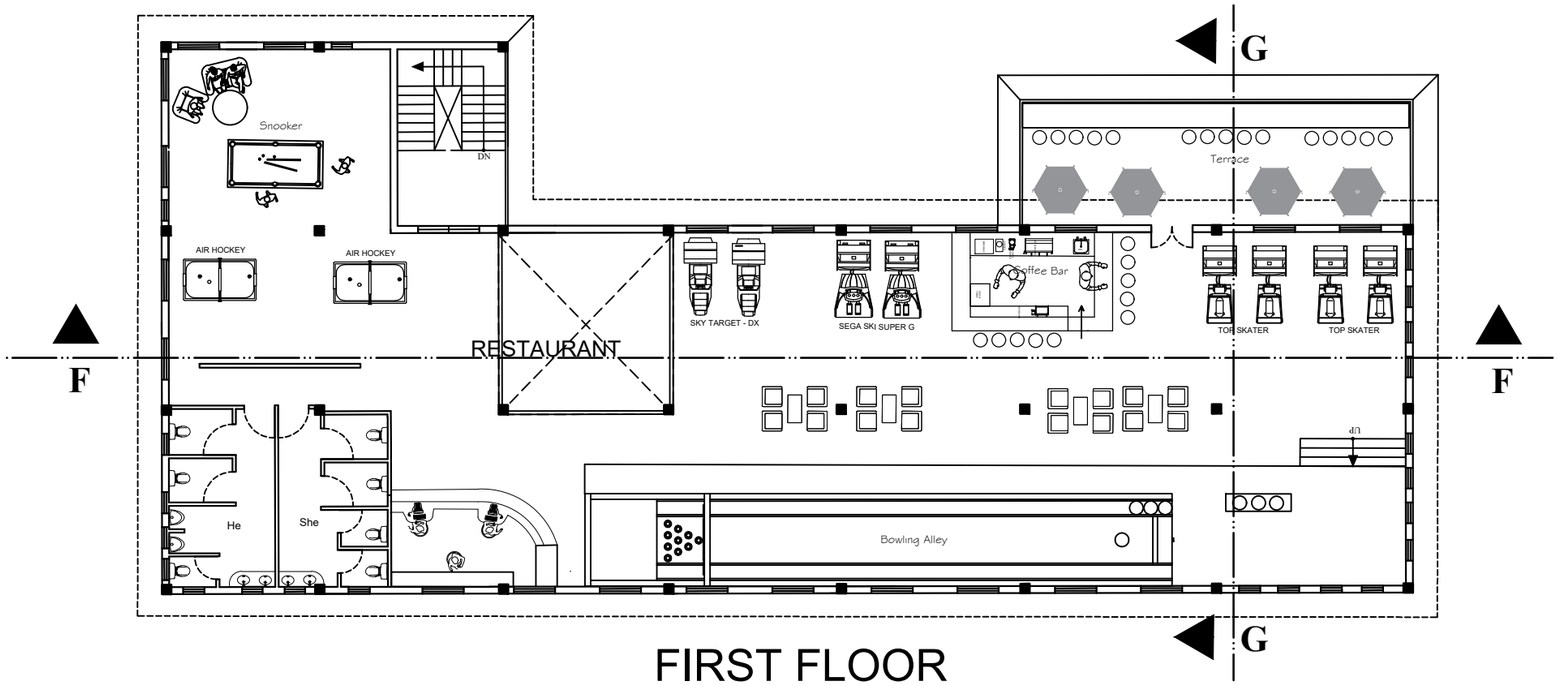


GROUND FLOOR

Area: 560 sqm



SECTION AT G-G

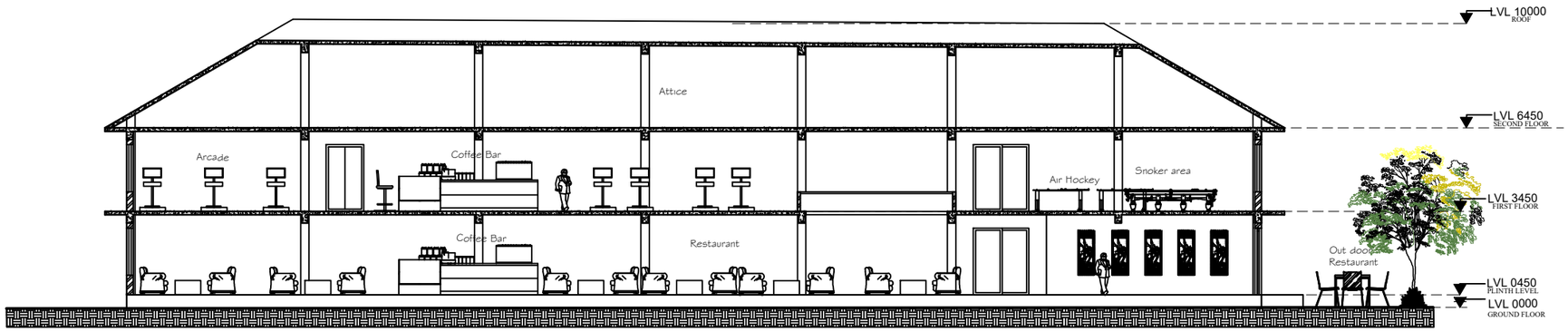


FIRST FLOOR

Area:610 sqm

PURBANCHAL UNIVERSITY KHWOPA ENGINEERING COLLEGE DEPARTMENT OF ARCHITECTURE	THESIS: COMMUNITY CENTER AT DUWAKOT TITLE: FLOOR PLAN	PRESENTED BY: AAYUSHAMA KARMACHARYA| 750102 SCALE:1:100 DATE: 2081/05/06	09

RESTAURANT



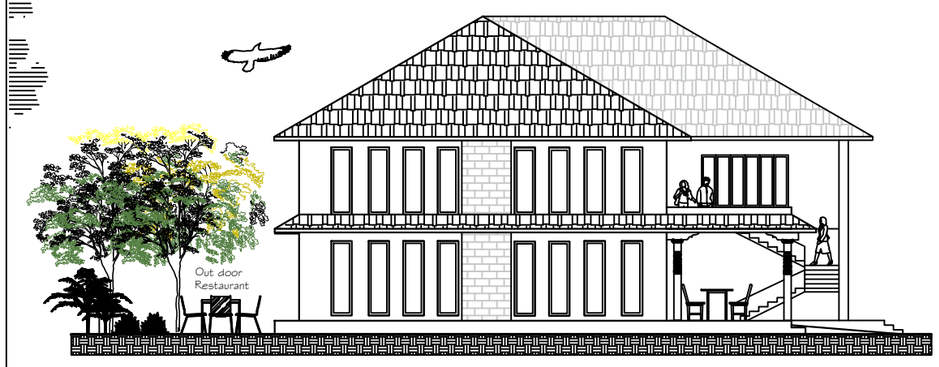
SECTION AT F-F

3D VIEWS

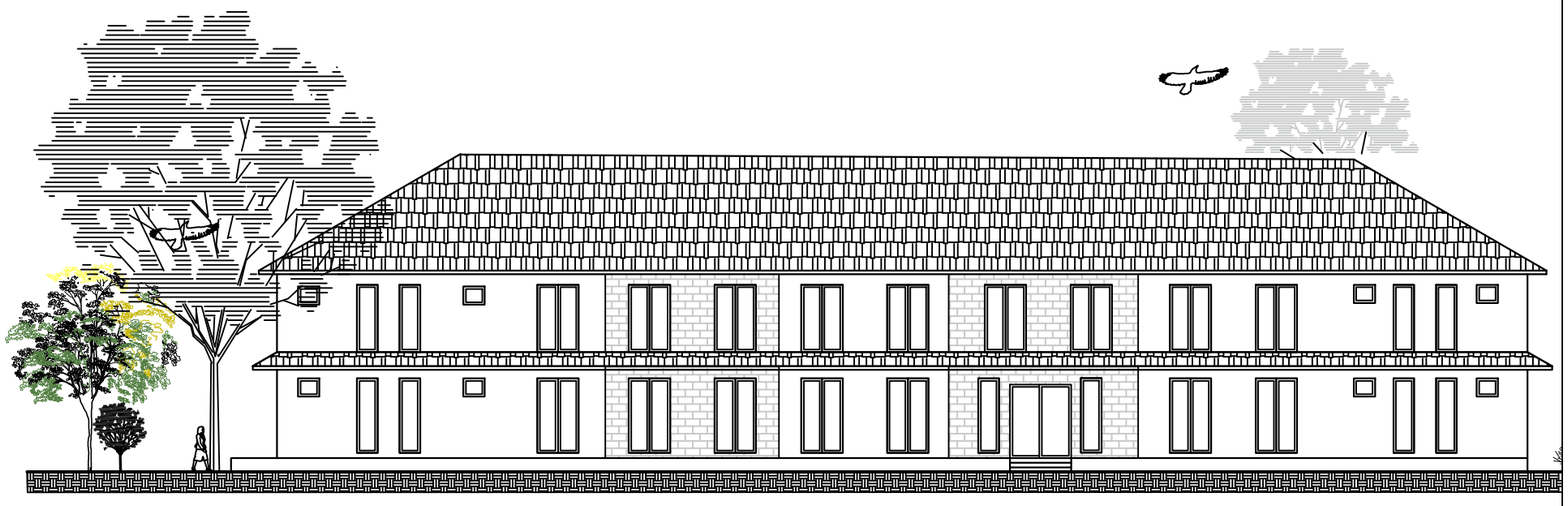
RESTAURANT

NORTH ELEVATION

WEST ELEVATION



EAST ELEVATION



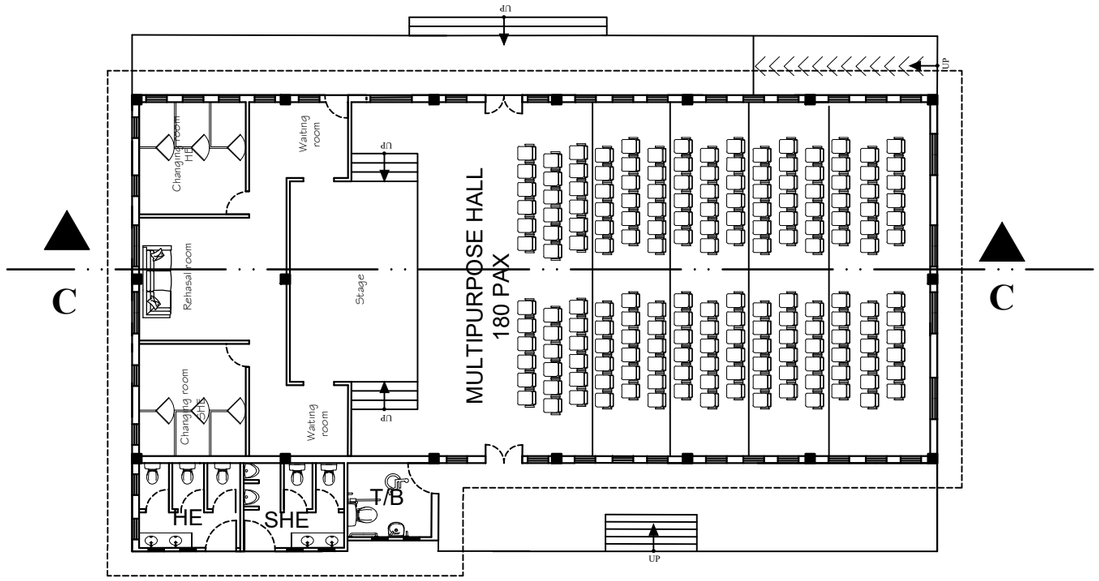
SOUTH ELEVATION

PURBANCHAL UNIVERSITY
KHWOPA ENGINEERING COLLEGE
DEPARTMENT OF ARCHITECTURE

THESIS: COMMUNITY CENTER AT DUWAKOT
TITLE: ELEVATION

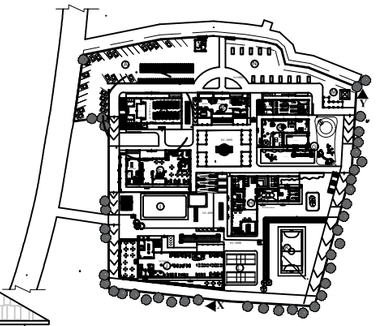
PRESENTED BY: AAYUSHAMA KARMACHARYA| 750102
SCALE:1:100 DATE: 2081/05/06

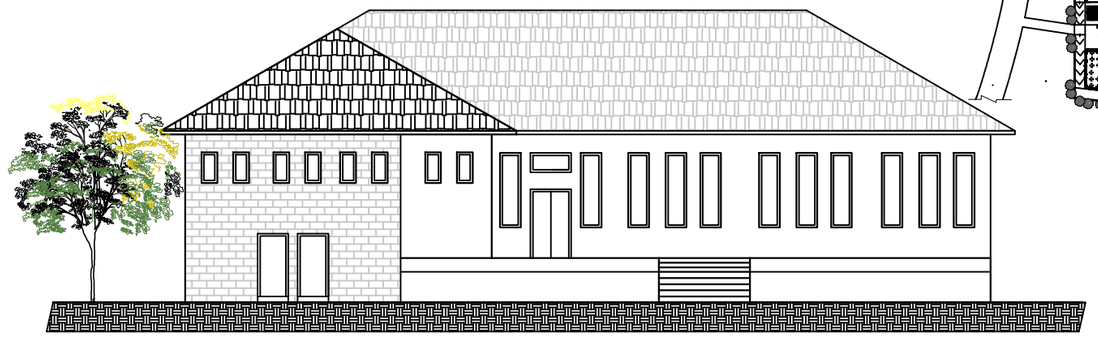
MULTIPURPOSE HALL



GROUND FLOOR

Area:445sqm

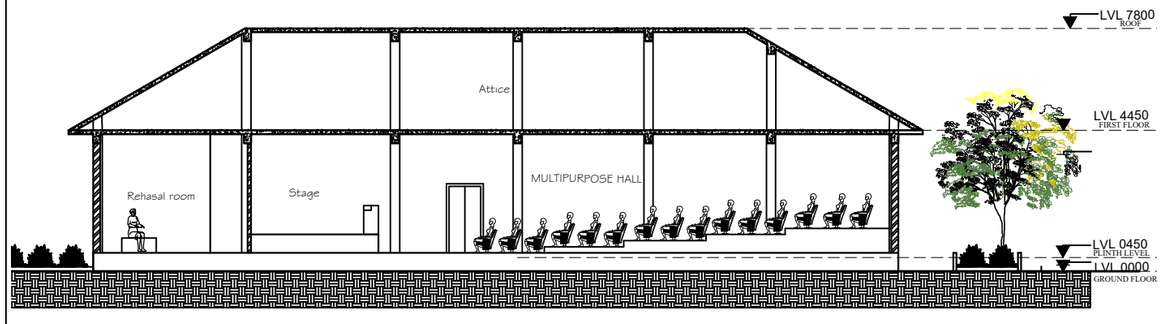




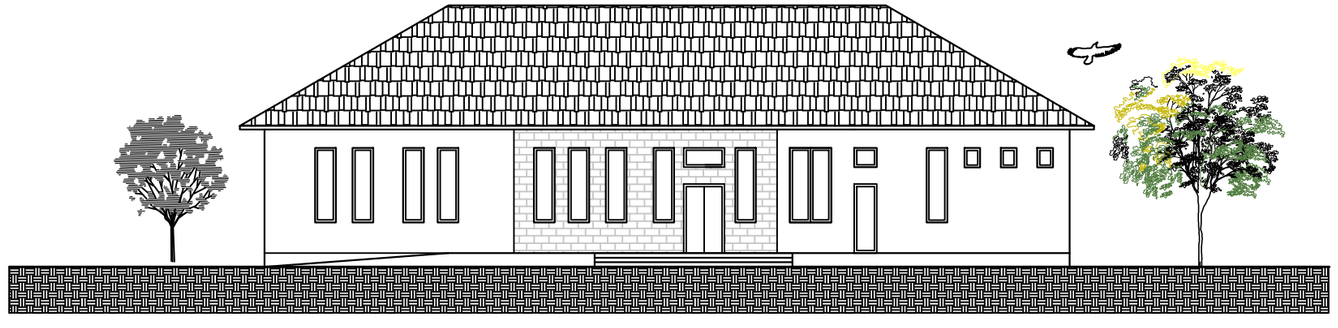
SOUTH ELEVATION

WEST ELEVATION

EAST ELEVATION

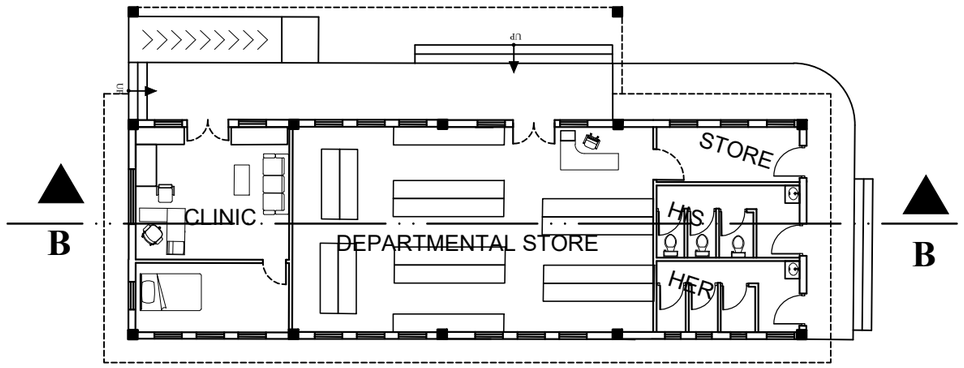


SECTION AT C-C



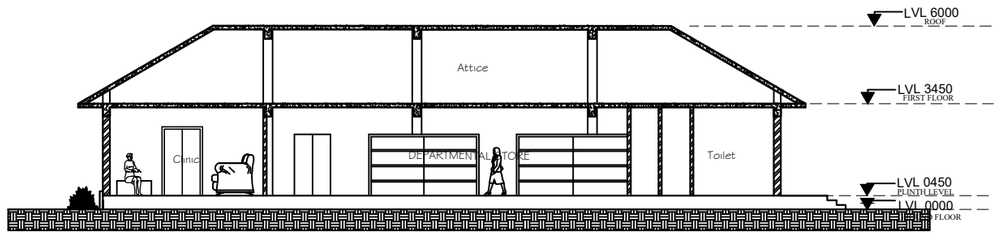
NORTH ELEVATION

DEPARTMENTAL STORE

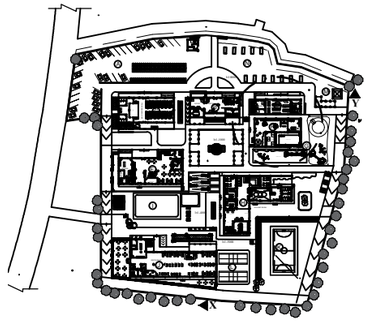


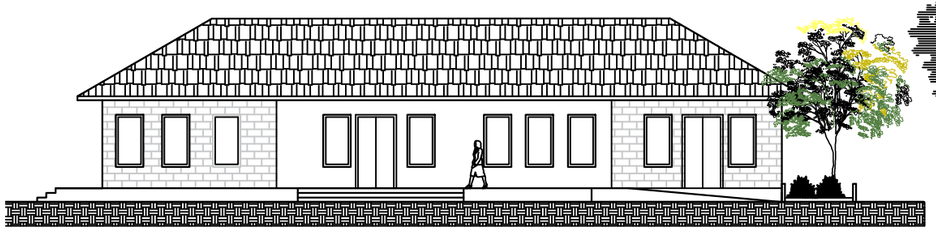
GROUND FLOOR

Area:230 sqm



SECTION AT B-B

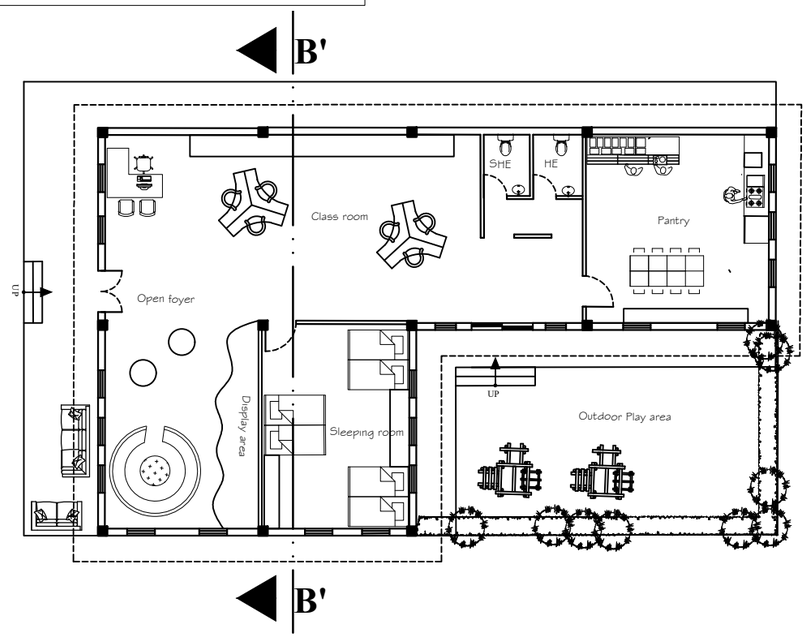




NORTH ELEVATION

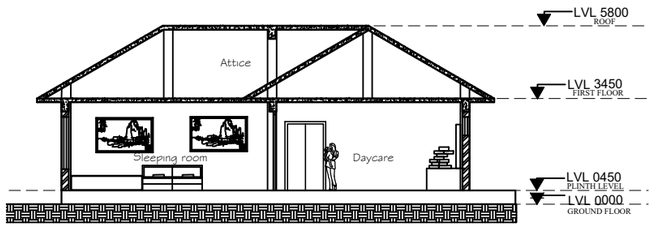
WEST ELEVATION

DAYCARE

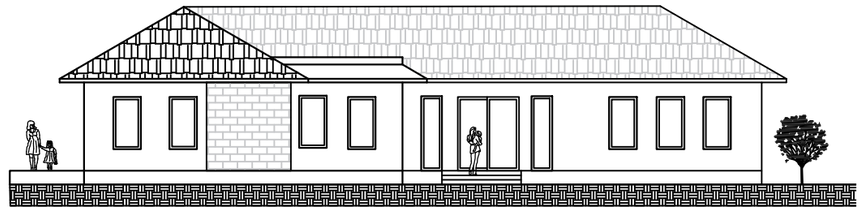


GROUND FLOOR

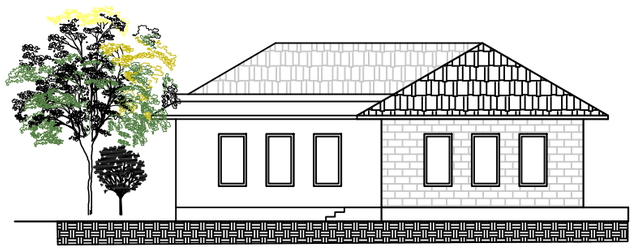
Area:270 sqm



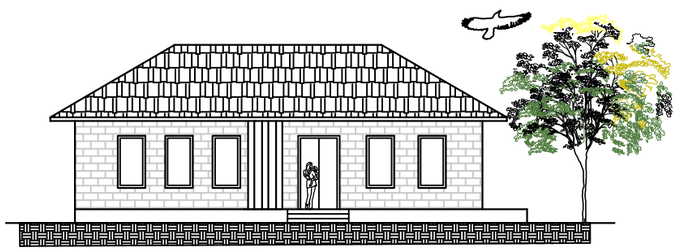
SECTION AT B'-B'



SOUTH ELEVATION



EAST ELEVATION



WEST ELEVATION

Central space

Wall climbing area

Restaurant area

Admin area

Spill out area

Playground

Banquet area

Overall 3D


ADMIN+ LIBRARY
BANQUET